Volume XXXV
Number 5.

AUGUST, 1908.

$2.00 per year.
$3.00 with Directory.

TEXTILE WORLD RECORD

Special Features

British Khaki for American Soldiers

The Fall River Sliding Scale

Fancy Knitting Designs

Comments on Cotton Exchanges by an English Expert

Reform of Textile Conventions.

LORD & NAGLE COMPANY BOSTON, MASS.

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The Textile-Finishing Machinery Co.

HOWARD BUILDING

STAIRWAYS, 83 EXCHANGE PLACE [ENTRANCES] ELEVATOR, 171 WESTMINSTER ST.

PROVIDENCE, R. I.

BUILDERS OF ALL KINDS OF

MACHINERY

FOR

BLEACHING
DYEING
DRYING
AND
FINISHING

Singeing Machines,

Boiling Kiers,

Washers, Squeezers,

Chemic and Sour

Rusden Patent

Continuous Chainless

Steamer,

Aniline Agers,

Dyeing Machines,

Open Soapers,

Blanket Washers,

Color Kettles,

Horizontal or Vertical Drying Machines, with Copper or Tinned Iron Cylinders,

Automatic Tentering Machines,

Water and Starch Mangles,

Dampening Machines,

Dyeing Machines for Chain Warps.

Calenders for Rolling, Glazing, Chasing and Embossing, also Calenders for Moire Finish.

Sole Manufacturers of Patented Flexible Cloth Expander for Cylinder Drying Machines, Calenders, Mangles, &c.

Patent Combination Rolls Made of Cotton and Husk, especially adapted for Soft Finish, Unequalled for Elasticity and Durability.

Cotton, Paper, Husk, Chilled Iron, Brass and Rubber Rolls, Electro-deposited Copper Rolls for all Purposes.

Padding and Drying Machines for Shade Cloths.

Single and Double Cylinder Engines.

Hydraulic Presses and Pumps.

Mercerizing Machinery for Piece Goods and Yarn in the Warp or Chain

ALL KINDS OF OUTFITS FOR BLEACHING THREAD AND SOFT TWISTED YARN.
BLEACHING MACHINERY FOR YARNS IN THE WARP OR CHAIN.

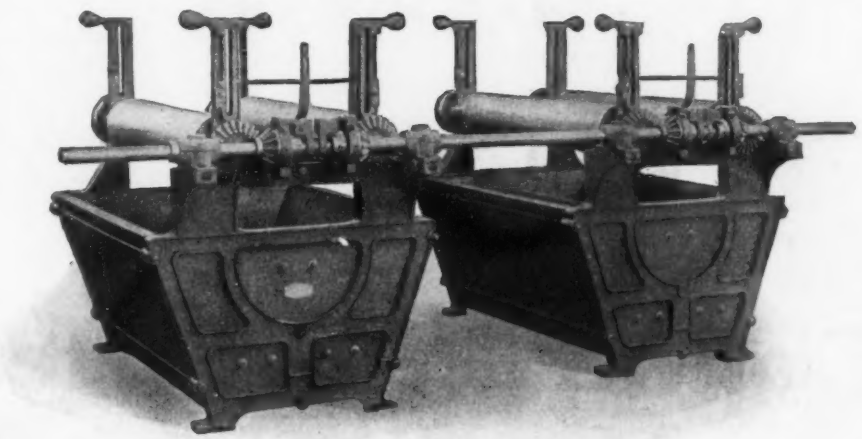
Estimates, Drawings and full particulars of complete plants furnished on application

Southern Agent, STUART W. CRAMER, Charlotte, N. C., Equitable Building, Atlanta, Ga.

H. W. BUTTERWORTH & SONS CO.

PHILADELPHIA, PA.

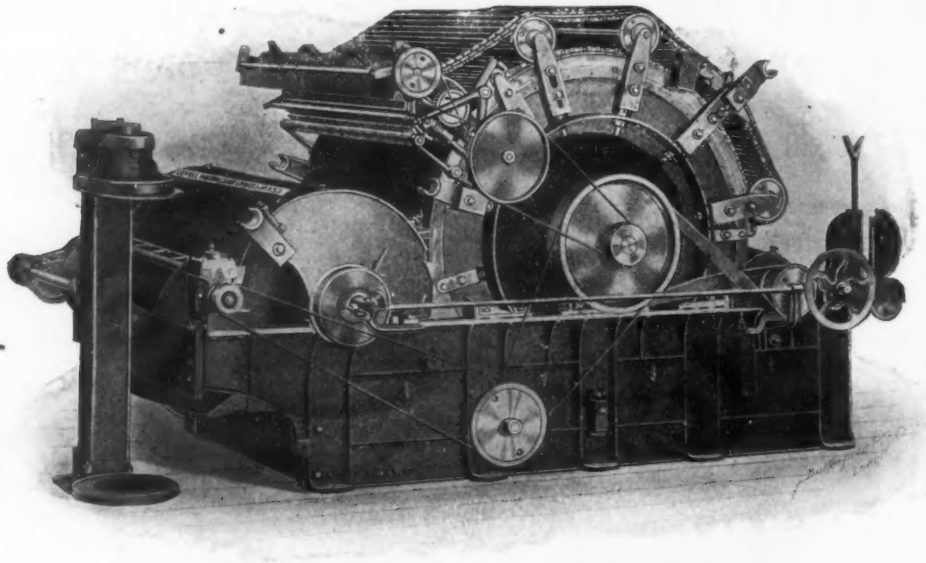
Providence Office, Room 417, Industrial Trust Building.



JIGGER

Bleaching, Drying, Dyeing and Finishing Machinery

for all textile fabrics.



Cotton and Worsted Machinery

With Modifications to Suit Any Class of Work.

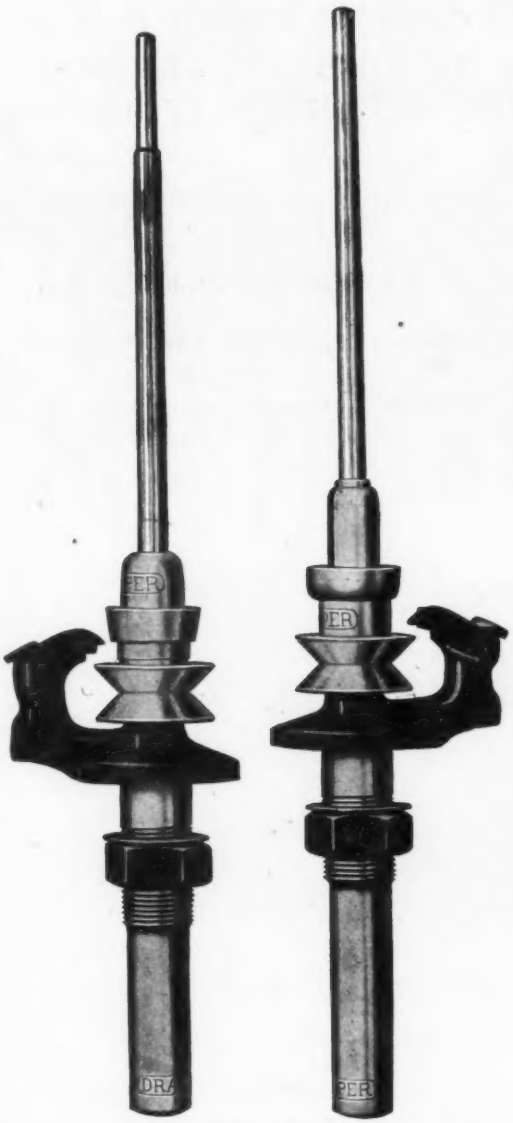
Cotton Machinery: Cards, Railway Heads, Drawing Frames, Fly Frames, Speeders, Ring Spinning Frames, Twisters, Spoolers, Reels, Warpers, Slashers, Winders, Looms, Shearing Machines, Balling Machines, Folders, Stamping Machines, Sewing Machines, Size Pumps, Size Kettles, Drawing-in Frames, Baling Presses, Indigo Grinders.

Worsted Machinery: Spinning Frames with caps, rings or flyers, Dandy Rovers and Reducers, Cone Second Finishers, Reducers and Rovers, Gill Boxes for Drawing, Preparing and Finishing, Weigh Boxes and Drawing Boxes, Cap Trap, Flyer and Ring Twisters.

Plans, Specifications and Estimates furnished upon application.

Lowell Machine Shop

LOWELL, MASS.



Two New
Large Size
Spinning Spindles.

We make

Draper,
Whitin,
McMullan

and other
types of

Spindles;

also

Northrop Looms,

Twisters,
Warpers,
Spoolers,
Reels,

Banding Machines,

etc., etc.

Draper Company,
HOPEDALE,
MASS.

THE EMPHATIC SUCCESS OF OUR "IDEAL" AUTOMATIC LOOM IS DUE TO SEVERAL SALIENT POINTS OF SUPERIORITY OVER ALL COMPETITORS:

1st. The ease and smoothness with which they start up.

2d. The acknowledged superiority of the cloth woven.

3d. Simple and thoroughly mechanical construction, assuring freedom from the constant breakage and expensive repairs attending other automatic looms.

4th. No special bobbins, shuttles or other expensive parts.

5th. Ability to use cop or bobbin filling interchangeably.

6th. Superiority of warp stop motion which does not break or fray the softest yarn.

7th. Of the thousands in operation not a single bobbin or crank shaft broken.

IN PROOF OF CLAIMS WE POINT TO THOSE MILLS FORMERLY USING OUR COMPETITORS' LOOMS THAT ARE NOW USING OURS.

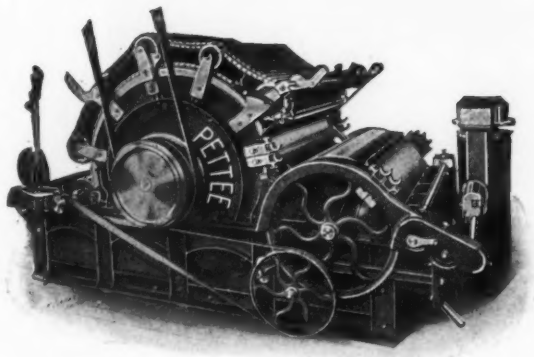
The Stafford Company

Readville, Mass.

Saco and Pettee Machine Shops

NEWTON UPPER FALLS, MASS., U. S. A.

COTTON MACHINERY



Shops—

Biddeford, Me.

Newton Upper Falls, Mass.

Revolving
Flat Cards,
Drawing
Frames,
Railway Heads,
Slubbing,
Intermediate
and
Roving
Frames,
Spinning Frames,
Spoolers
and
Reels.

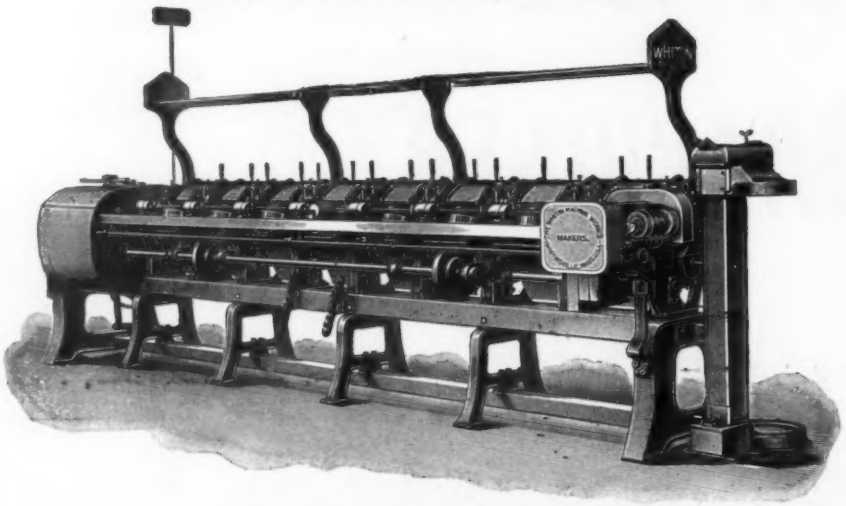
Southern Agent, A. H. WASHBURN, Charlotte, N. C.

THE

WHITIN MACHINE WORKS,

Cotton Machinery

WHITINSVILLE, MASS.



HIGH SPEED COMBER 1906 MODEL.

Revolving Flat Carding Engines,
Sliver Lap Machines,
Ribbon Lap Machines, Combers,
Railway Heads, Drawing Frames,
Spinning Frames, Spoolers, Twisters,
Long Chain Quilling Machines, Reels, Looms.

Southern Agent,
S. W. CRAMER

Trust Building, CHARLOTTE, N. C.
Equitable Building, ATLANTA, GA.

"Kitson Products"

Blowing Systems

For Conveying Bale Cotton
from Storehouse to Picker-room

Self-Feeding Openers
Lappers and
Cleaning Trunks

Waste-Working Machinery

Raw Stock Cotton Dryers

We own the Patterns and can furnish REPAIR PARTS for PICKERS
formerly built by

WHITEHEAD & ATHERTON, . Lowell, Mass.
ATHERTON MACHINE CO., - - Lowell, Mass.
A. T. ATHERTON MACHINE CO., Pawtucket, R. I.

Kitson Machine Shop

Lowell, Mass.

SCOTT & WILLIAMS

2079 E. Cumberland Street, Philadelphia, Pa., U. S. A.

BUILDERS OF

Full Particulars, Samples nnd Special Catalogues on Application.

Rib Knitting Machinery for Underwear and Hosiery

Plain, Single Lever or with Welt, Slack Course and Automatic Slackening Device for Welt.

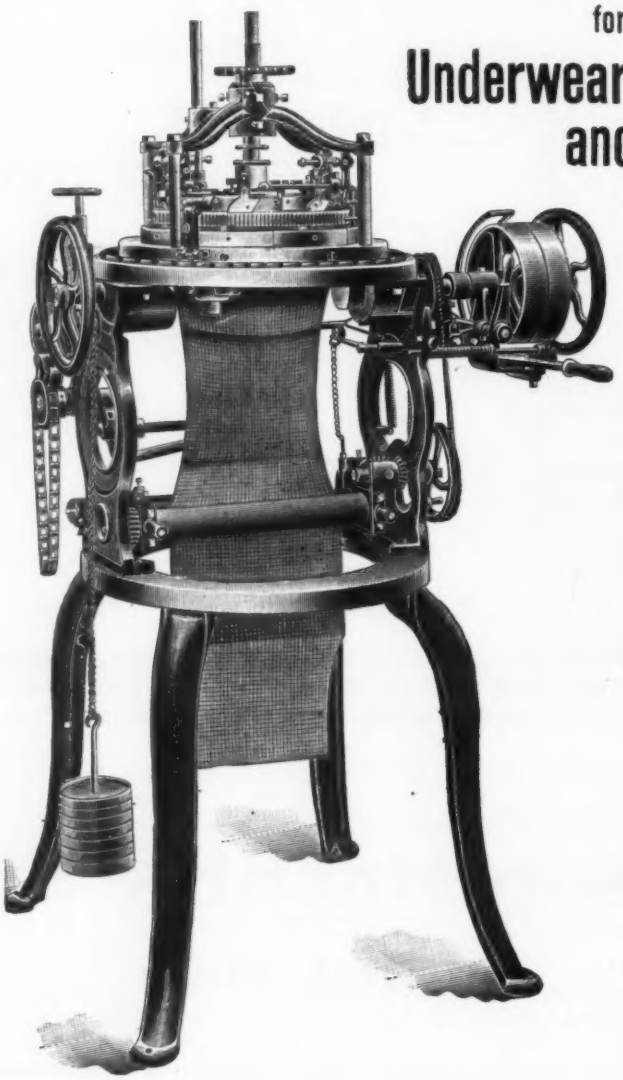
Improved Measuring Device, by actual length knit.

Sizes 8 to 24 inches, inclusive, varying by one inch.

Number of Feeds, 4 to 12, according to style and diameter of machine.

Solid Forged Steel Cylinders, specially hardened or with patent inserted walls for fine fabric.

Special Machinery for Sweaters, etc.



The illustration shows our

Improved High Speed Single Lever Automatic Ribbed Underwear Machine

for making ladies' and gents' ribbed underwear, union suits, etc., plain and shaped.

We build Loopers, Ribbers and other Machinery for Knitting Mills

As well as

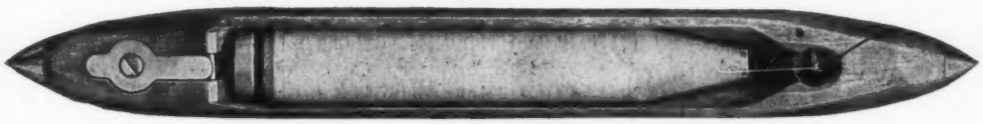
A Complete Line of Full Automatic and 7-8 Automatic Seamless Hosiery Machinery.

Mill Equipment of No. 50 Machines for Coning, Tubing and Doubling

(Number of spindles in this plant nearly doubled during last six months and run on full time constantly.)

"UNIVERSAL WIND" lays yarn with delicate precision entirely avoiding rolling and distortion of the twist incident to every form of "friction" or "drum" driven winders. Soft twist yarns will test stronger after being wound on Universal machines than when wound by the drum system.

UNIVERSAL WINDING MACHINES are built for high speed and durability. Correct design makes for quick "doffs" and a maximum production per operative. Substantial savings in floor space, horse power, oil and general upkeep cost over other types of winding machinery for yarn, thread, twine and cords.



The New No. 90 Bobbin Winder

adapts the UNIVERSAL SYSTEM to BROAD GOODS. It increases Shuttle yardage two to four fold, stops waste in the shuttle—reduces the cost of weaving woolens, cotton and silks. Use of larger spinning rings made practicable.

Universal Winding Co.

95 South Street, Boston, Mass., U. S. A.

INTERNATIONAL WINDING COMPANY

Saville St., Oxford Road, Manchester, England

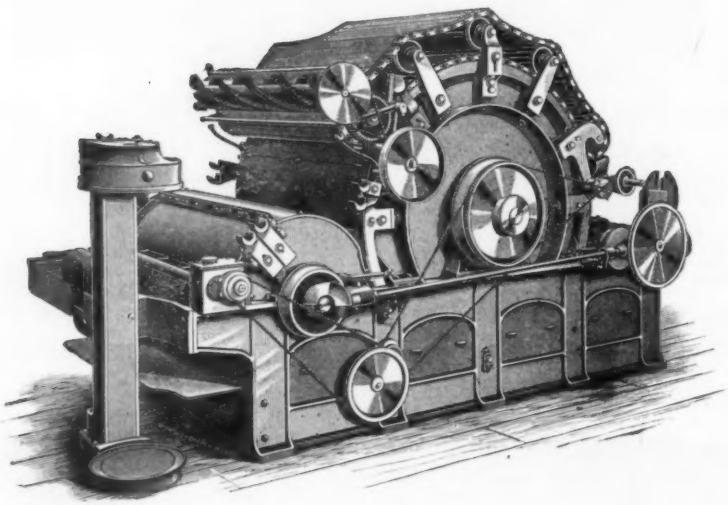
16 St. Johannvorstadt, Basel, Switzerland

Cotton Machinery

MASON MACHINE WORKS,

TAUNTON, MASS.

Southern Office,
Charlotte,
N. C.



Cards,
Combers, Railway
Heads, Drawing Frames
Spinning Frames, Mules and Looms

INCLUDING

Plain and Fancy Silk Looms

EVAN ARTHUR LEIGH

232 Summer Street (opposite the South Station), Boston, Mass.

SOLE AGENT

IN THE UNITED STATES AND CANADA FOR

Platt Bros. & Co., Ltd.

BY FAR THE LARGEST MAKERS IN THE WORLD OF

Cotton, Woolen and Worsted Machinery

Platt's Patent Opening and Picking Machinery.
Platt's Cotton Comber will comb from 7-8" stock to Sea Islands.
Platt's Special Machinery for Making Cotton Waste into Yarns.
Platt's Special Machinery for Making French Worsted Yarns.
Platt's Woolen and Worsted Carding Engines, Special Designs.
Platt's Cotton, Cotton Waste, Woolen and Worsted Mules.

MATHER & PLATT, LTD.

Dyeing and Finishing Machinery.
Archbutt-Deeley System for purifying and softening water.

TEXTILE MACHINERY ASSOCIATION, LTD.

Flax, Hemp and Jute Machinery.

GEORGE HODGSON, LTD.

Looms for Worsteds, etc.

THE PATENT AUTOMATIC FEEDING MACH. CO., LTD.

Patent Feeding Machines for wool, cotton, flax, fur and fibrous material.

JOSEPH SYKES BROS.,
Card Clothing for Cotton.

JAMES CRITCHLEY & SON'S,
Card Clothing for Woolen and Worsted.

DRONSFIELD BROS'.

Grinding Machinery and Emery Filleting. The Best French and English Combing and Rubbing Aprons. Harding's Pins and Circles. Varey's Fallers, etc.

THE

Worcester Warp Compressor

increases the capacity of

A Cotton Slasher 25% to 60%

Because, when attached to a COTTON SLASHER, this WORCESTER WARP COMPRESSOR will put from 25% to 60% more yarn on a loom beam. Saves waste, drawing-in, and fewer warps to handle.

These compressed warps are round, level, and true, consequently weave better with increased production from the weave-room.

Equally effective on fine or coarse yarns.

This Warp Compressor is built both broad and narrow, and can be attached to any make of slasher. The compression roll is adjustable for various widths of warps.

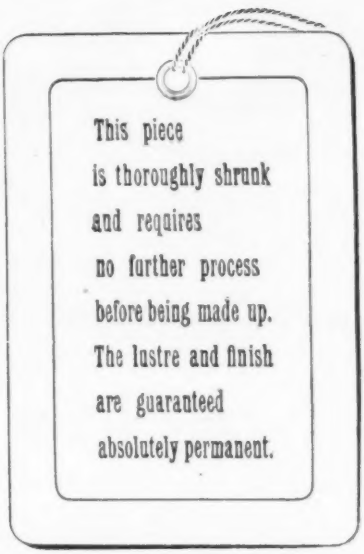
Occupies but **eight inches,** back of the loom beam.
Underneath the yarn; out of the way.
Requires less power; no time lost in stopping and starting.
No change in your **methods** or **machinery.**

Personal attention. Blue-prints showing this Compressor in operation.

Worcester Warp Compressor Co., Worcester, Mass.
Cor. Union and Exchange Sts.

Mr. Manufacturer

Would it be of any advantage to you if you could put this ticket on your goods ?



If so the Paul Klug Decating Apparatus will interest you.

L. H. A. Schwartz & Co., 141 Milk Street, Boston

Sole American Agents.

Now is the Time to Equip With New Process Noiseless Pinions

There are doubtless some places about every plant where the racket made by metal gears is a nuisance and the quiet running of New Process Noiseless Pinions would be a vast improvement. The pressure of business, however, for the past two years has kept most factory managers so busy that they have had no time to consider such refinements of their equipment. The present slackening in the rush should be taken advantage of to look into this matter and to prepare to have the benefit of Noiseless Gearing during the busy times which are soon to come. We will be glad to send our descriptive catalog for the asking.

The New Process Raw Hide Company

Syracuse, New York

JAMES HUNTER MACHINE CO.

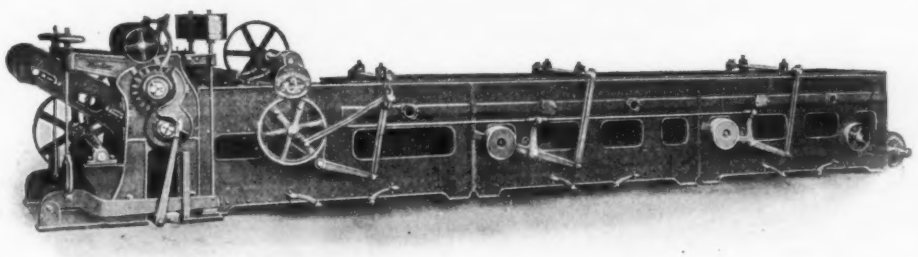
NORTH ADAMS, MASS., U. S. A.

Wool Washers. *Bulletin 54*

The Hunter

MODEL D

WOOL WASHER



"ASK ANY USER"

Bulletin 54 describes it

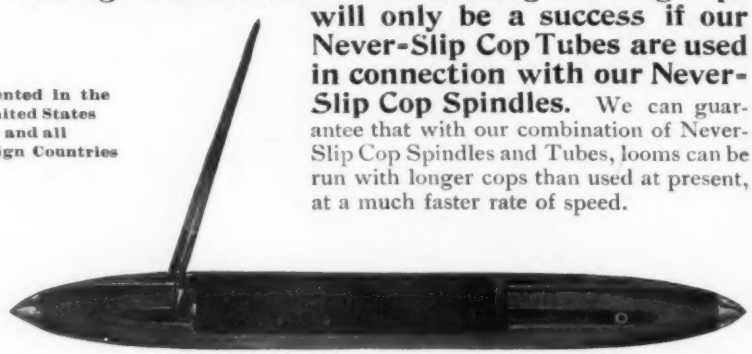
Never-Slip Cop Spindles and Tubes

Never-Slip Cop Tube

Patent applied for.

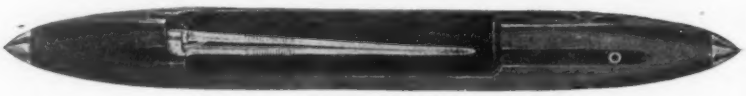
Patented in the United States and all Foreign Countries

Filling-Waste is reduced to nothing and long Cops will only be a success if our Never-Slip Cop Tubes are used in connection with our Never-Slip Cop Spindles. We can guarantee that with our combination of Never-Slip Cop Spindles and Tubes, looms can be run with longer cops than used at present, at a much faster rate of speed.



Shuttle with Spindle Raised

U. S. Patents: 778851, Jan 3, 1905; 790611, May 23, 1905; other patents pending



Shuttle with Spindle Lowered

U. S. Patents: 778851, Jan. 3, 1905; 790611, May 23, 1905; other patents pending

American Textile Specialty Machinery Co.

MANUFACTURERS OF

Shuttles and Shuttle Irons for all Textile Purposes.

New York Office, 363-373 Rider Ave. **670 Eddy St., Providence, R. I.**

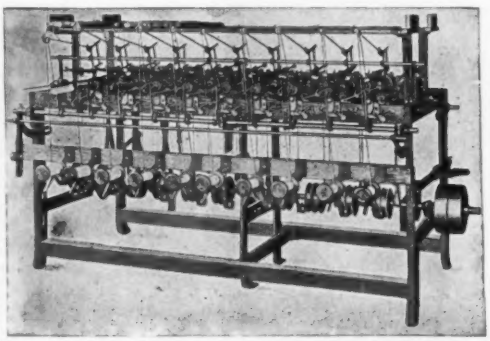
OSWALD LEVER CO.

(Formerly LEVER & GRUNDY.)

Lehigh Ave. and Mascher Sts., PHILADELPHIA, PA.

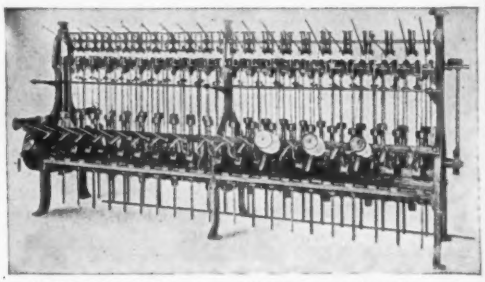
MANUFACTURERS OF TEXTILE MACHINERY.

SOLE MAKERS OF OUR PATENTED SPECIALTIES IN THE UNITED STATES.

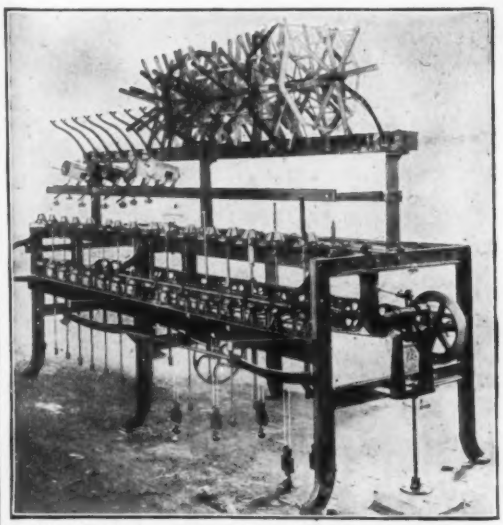


This Machine may be arranged to wind from skeins, spools, cones, or any kind of spinning bobbins. Most suitable machine for cotton or woolen blankets.

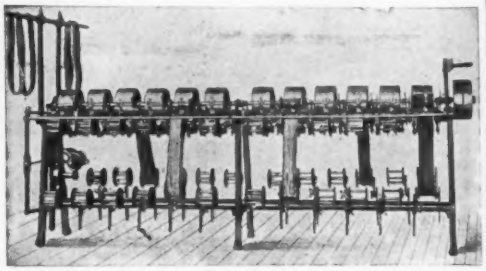
Conical and Parallel Tube Winding Machines; Warping Machines and Creels; Brass Bobbin Winding and other Machinery for lace mills; Chenille Cutting Machines, Sectional Warping Mill, Beaming Machines, etc; Cop Winding Machines for butts to weave from outside; Filling Bobbin or Quill Winding Machines; Vertical Spindle Spooling Machine for silk, fine cotton, wool and worsted; Variable Speed Bobbin Machines for large bobbins used in knitting mills; Dresser Spooling Machines; Reeling Machines.



Vertical Spindle Gear Driven Winder, as used by all manufacturers of heavy duck, jute, cotton, bagging and carpets.

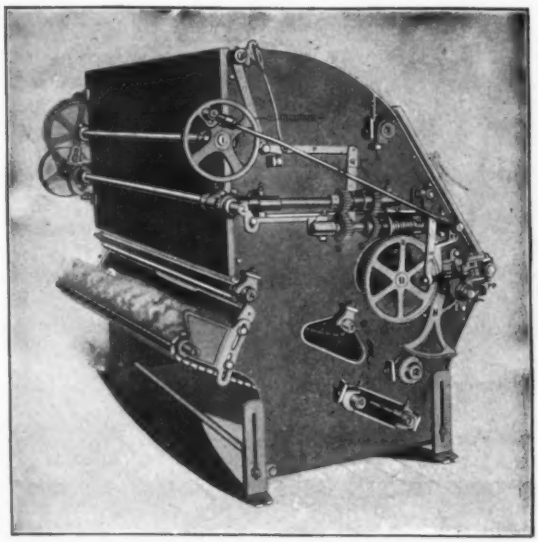


High Speed Cross Quiller to wind from skeins, spools or mule cops on two quills or paper tubes. It is built to run from 1800 to 2400 revolutions.



Pressure Drum Spooling Machine. This machine is adapted for spooling any kind of yarn, whether from mule cops or skeins.

THE FISHER PATENT CARD FEED



Write Us For List of Mills Where Machines Are Used.

Woonsocket Machine and Press Company

WOONSOCKET, R. I.

PRACTICAL FIRE PROTECTION

If you want your mill buildings properly protected against the fire hazard, thereby obtaining the lowest insurance rates, you must have a supply of water which is instantly available under high pressure and absolutely independent of the successful or immediate operation of pumps or other machinery. The old method of storing such a supply was by wood tanks, generally built on top of buildings. As these tanks are short lived they soon become, themselves, a menace to the building instead of a protector. The sudden bursting of such a tank has often done as much damage as a fire. The up-to-date method of storing water is by means of a steel tank on a steel tower. We make a specialty of the design, manufacture and erection of these tanks of any desired capacity, in any part of the country, to meet any local conditions. Our tanks are recommended by the Factory Mutual Insurance Companies and endorsed by all of our past customers. We have built about seven hundred towers and tanks in all parts of the country, about 50 of which have been erected for Textile Mills. Every one of these is giving satisfaction. Write for booklet No. 7 which gives a list of all our customers with whom we invite you to correspond. The cut shows a tank which we built for the Belton Cotton Mills, at Belton, S. C. The large tank is kept full at all times for fire protection; the small one supplies water for use in the buildings.

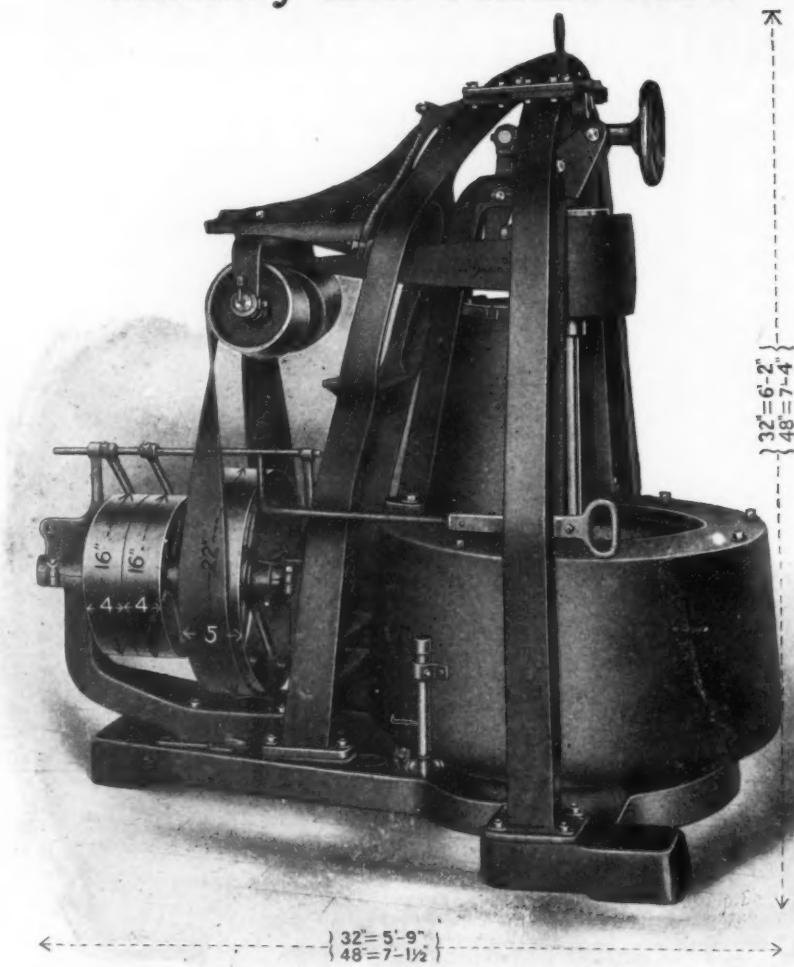
Chicago Bridge and Iron Works

105th and Troop Sts. Chicago, Ill.

Open Driven Extractors

FOR

Hosiery and Textile Mills



The American Laundry Machinery Mfg Co.

Western Division — 78-80 Franklin St. Chicago

Eastern Division — 132-138 W. 27th St. New York

Southern Division — Station "H" Cincinnati

TAPES, BRAIDS AND RIBBONS

for the Mill and Manufacturing Trade

WICK NARROW FABRIC CO.
PRODUCERS OF SPECIALTIES
726-728 Market Street, Philadelphia
Address Department Z

STARCH.

Increased efficiency in

WARP SIZING

with LESS COST by using

Adhesive Value:

One pound of "C. P. SPECIAL" contains a sizing value of from one to one and a half pounds of any other starch.

"C. P. SPECIAL" requires no heavying or stocking up after standing.

Sizing Qualities:

"C. P. SPECIAL" dries without sticking on slasher cylinders.

"C. P. SPECIAL" penetrates yarn thoroughly.

"C. P. SPECIAL" increases tensile strength of yarn from 5–10 percent.

"C. P. SPECIAL" boils quickly and produces good, smooth size.

Weaving:

Warps sized with "C. P. SPECIAL" draw in and weave to entire satisfaction.

"C. P. SPECIAL" will not dust off under your looms.

Demonstration:

We are ready to demonstrate in your mill—free of cost—just what "C. P. SPECIAL" will do.

100 lbs. "C. P. SPECIAL" will be sent on request to any responsible Cotton Manufacturer for demonstration purposes.

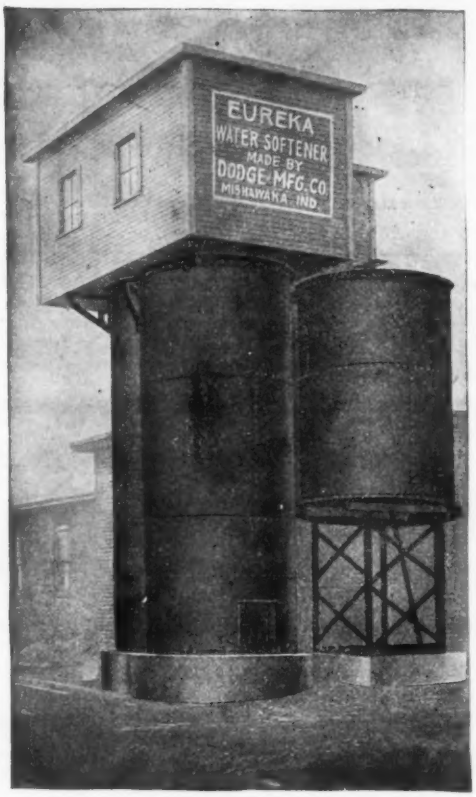
Corn Products Refining Co., New York, N. Y.

Pure—Clear—Soft—Water

IS WHAT YOU NEED FOR

WASHING, SCOURING, BLEACHING, RINSING,
DYEING, FINISHING, LAUNDERING AND FOR

BOILER FEEDING



"Eureka" System at Des Moines (Ia.) Hosiery Mills.

It *increases* the Standard of your Product, and

Decreases your cost of manufacture.

It *economizes* in dyes, soap, alkali, repairs to boilers and in fuel consumption.

The Eureka Water Softening and Purifying System

Insures a Continuous, Uniform Water for all purposes, regardless of variations in the initial supply, be it stream, pond, lake or well.

The Investment

is reasonable, and cost of operation insignificant.

This System pays large dividends to the owner and carries the *DODGE* stamp of mechanical perfection

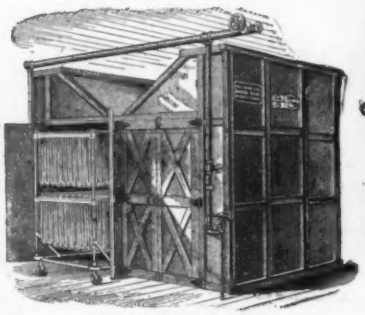
Our Red Book No. 3 contains full information, and is sent on request to all who are interested.

Dodge Manufacturing Company
Water Softener Dept. Mishawaka, Indiana

"HURRICANE" DRYERS AND FANS

For Wool, Cotton Stock, Yarn, Stockings, Underwear, Etc.

Power Screw Hydraulic and Lever **Presses**



Truck Yarn Dryer.

BELT DRIVEN AND MOTOR DRIVEN

"Hurricane" Fan, Style No. 2. Write for Catalogues.

COMPLETE EQUIPMENTS FOR DYEING, SCOURING, BLEACHING, CARBONIZING, OXIDIZING, CHROMING, Etc.

PHILADELPHIA DRYING MACHINERY CO.

6721 Germantown Ave., Philadelphia, Pa.

Hermallin

An entirely neutral size retainer that interferes in no way with dyeing, makes the fibre smooth and easy to weave, and is easily washed out.

VERA CHEMICAL COMPANY · SEMPER·IDEM · TRADE MARK · MILWAUKEE, WIS · STONEHAM, MASS.

It has strong adhesive qualities, causes the size to penetrate deep into the fibre and can be used with the most delicate colors.

Even single rough Cheviot yarns can be easily woven by using Hermallin. Send for samples and full particulars.

VERA CHEMICAL CO., Stoneham, Mass.

Also manufacturers of *Apollo Oil for Wool* and *Arachidelle Creme* for Worsted Spinning.

Palmer's Improved Adjustable Thread Guide

For Ring Spinning and Twisting

This guide supplies an accurate, rigid and permanent adjustment, and is attached to the ordinary spinning frame clapper. It has more merits than any other adjustable guide and at a greatly reduced cost. Perfect adjustment saves broken ends, abnormal wear of the rings, and increases the production and quality. Will soon pay for itself.

A Radical Departure in Twisting Guides.
Insures the Greatest Economy in Twisting,
Saves Power, Lays the Fibre Closer,
and Makes a Smoother Thread.

Applied and Adjusted in the same way as the Wire Guide shown herewith.

Send for free sample and circular.

Patented in United States, July 24, 1906; April 9, 1907; and June 4, 1907. Japan, Oct. 12, 1906. France, October 2, 1906. England, Sept. 13, 1906. Spain, July 23, 1906. Belgium, July 24, 1906 and Italy. Patents applied for in the United States, Germany, Switzerland, Austria, Russia, Poland and India.

Patented and Manufactured by

The I. E. Palmer Co.

Middletown, Conn., U. S. A.

7 REASONS

Why Woolen Yarn Spinners will find Distilled Wool Grease Oleine the Best and Most Natural Oil to use

FIRST.—It puts back into the wool the same natural grease value that was taken out of it in the scouring.

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FIFTH.—Being distilled, the fleshy matter of the wool base is removed, and will not oxidise or turn rancid.

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SEVENTH.—There is no liability from the use of this oil to the cloudiness and and streakiness which is so often observed in dyed goods which have been oiled with lard oils, and which is generally caused by the oil not being perfecily washed out.

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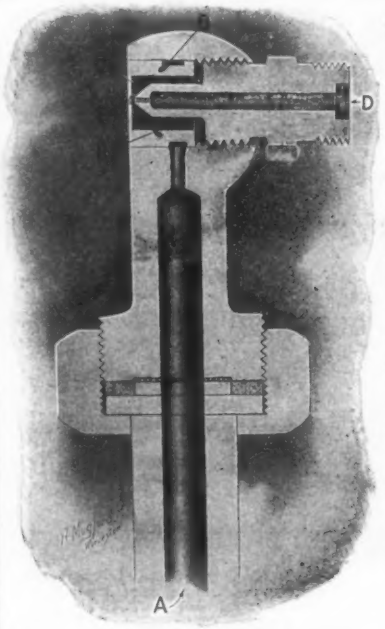

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The Only Humidifier That Completely Vaporizes the Water.

This complete vaporization is secured by introducing air or steam at the orifice A. This air passes through the tangential ports B B'. This produces a vacuum at the end of the water nozzle E, draws the water through the tube D.

The centrifugal motion imparted to the air (the Turbo principle) actually pulverizes the water in the chamber C before it is delivered to the atmosphere. This same principle spreads the vapor and distributes it before condensation can occur.

ALL parts renewable—and easily replaced or adjusted.

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automatically, continuously and exactly proportions the chemicals and water in a way to eliminate the minerals that cause "hardness" and can be regulated to conform to changes in water supply.

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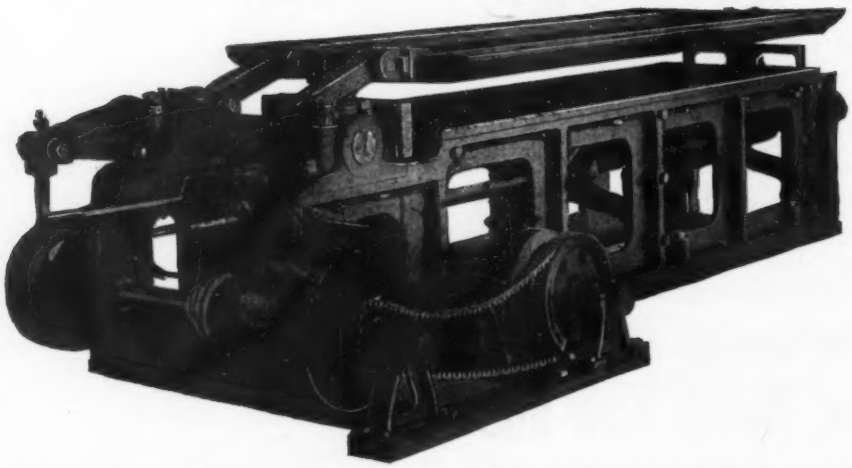

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Perfectly Even Tension Both Ways

THIS ideal cloth expander gets the full width of the goods in a most satisfactory way. Can be attached to calenders or cans. Hundreds in use in Great Britain and on the Continent—hundreds more in the United States, with constant satisfaction.

Manufacturers unsolicited say to us, "You have the greatest thing in a spreader ever brought to our attention."

We put them in on trial.
Test it on your own work—'t will pay.

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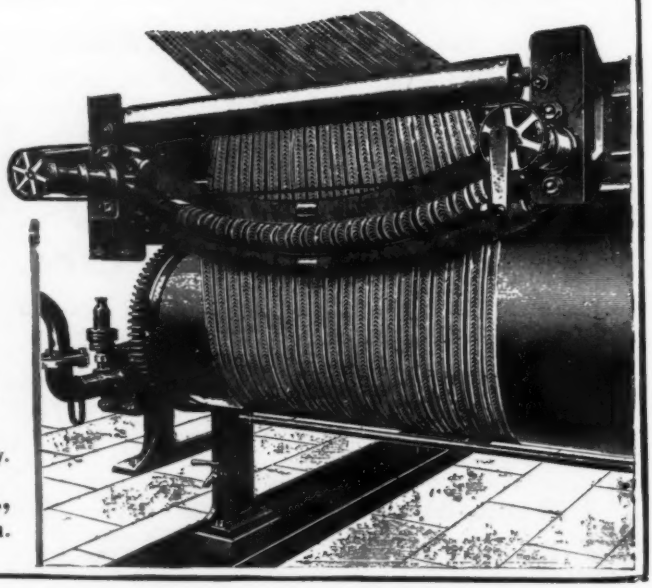

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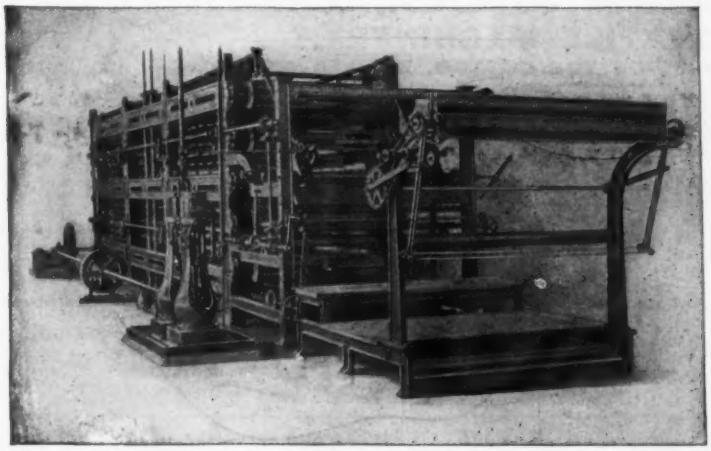
WITH LOW DOWN FEED. **PATENTED FEBRUARY 26, 1895.**



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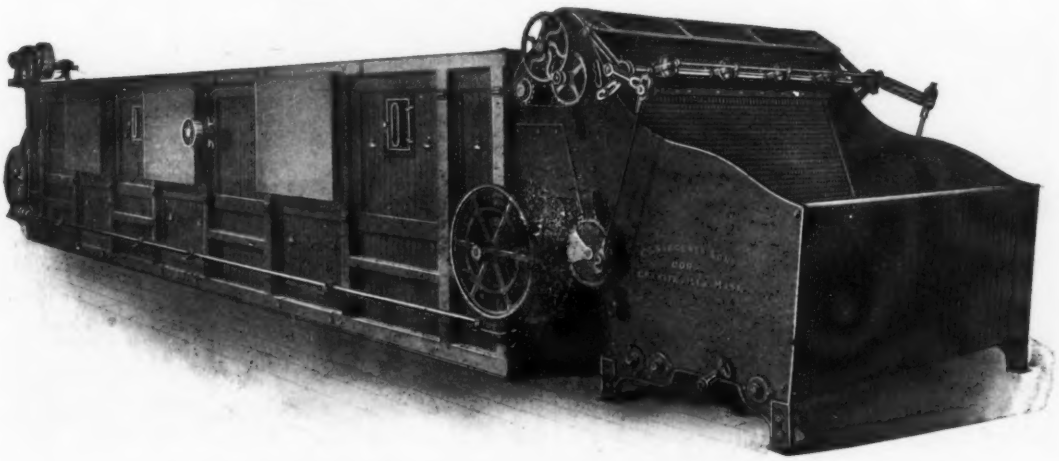

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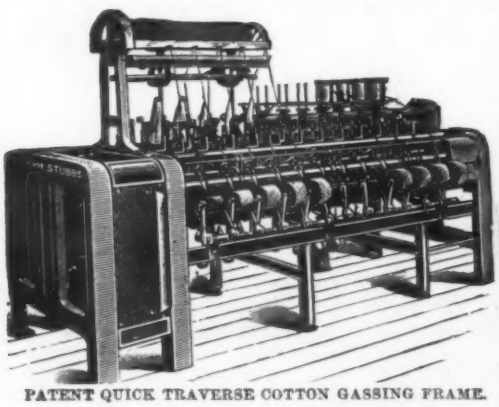

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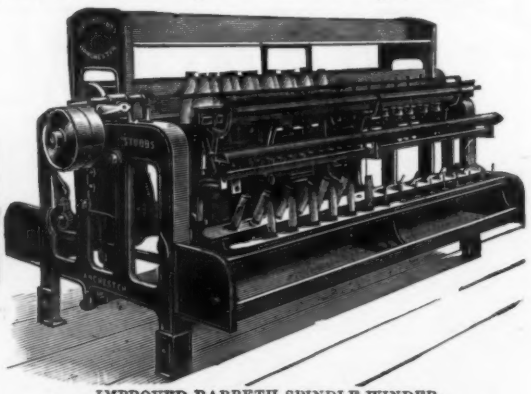

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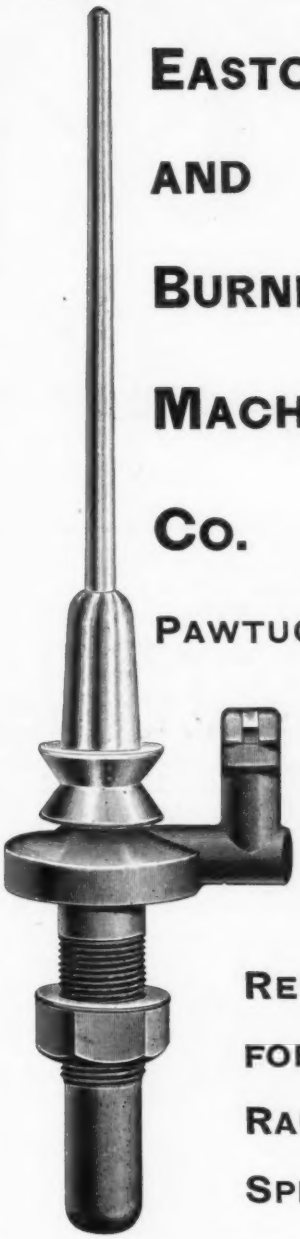

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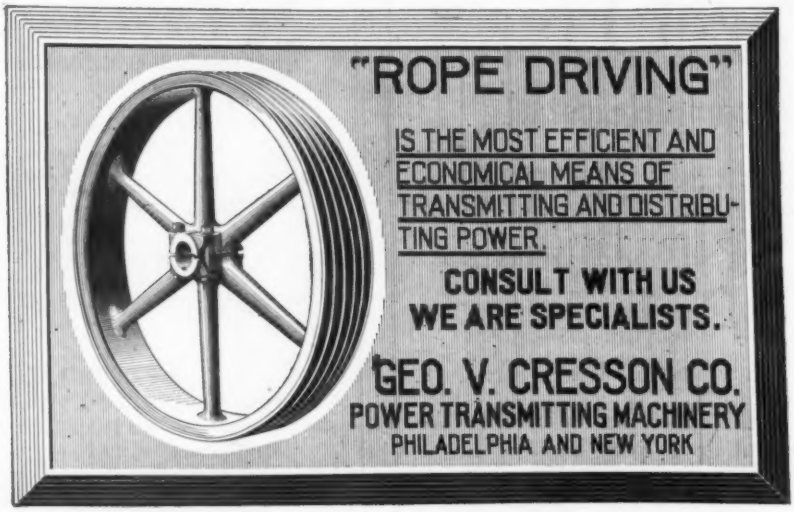
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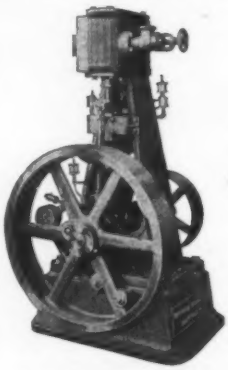

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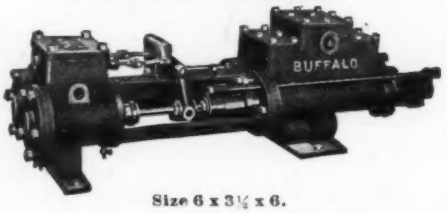

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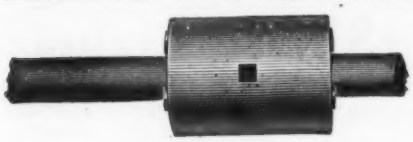

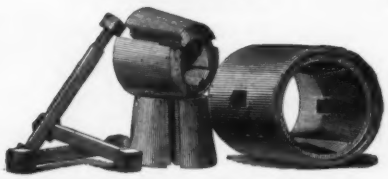

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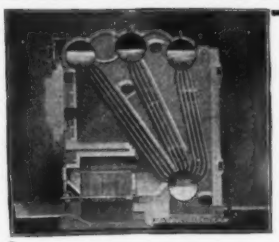

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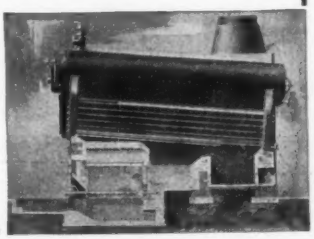

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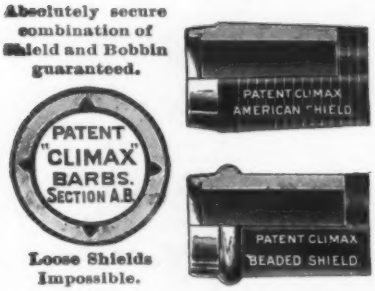

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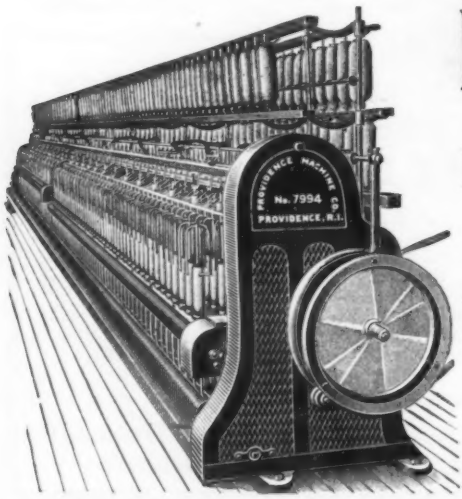

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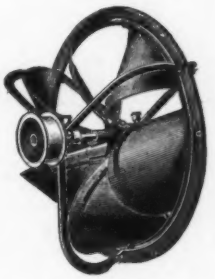

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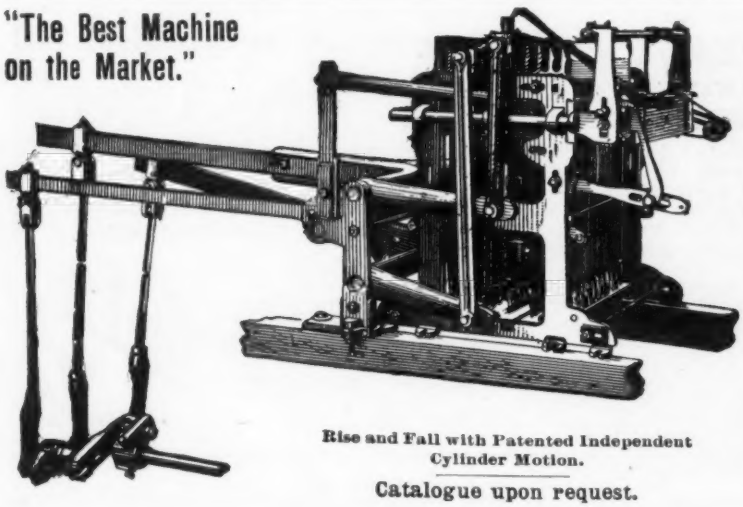

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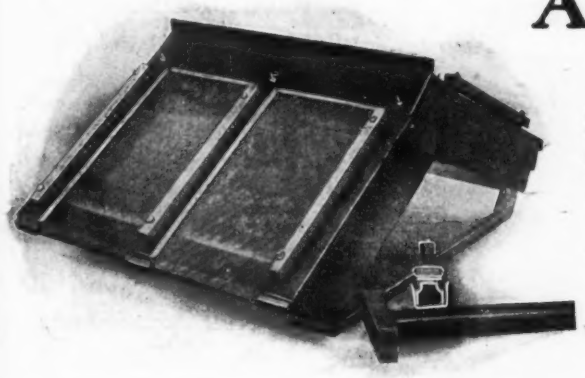

are easily erected and kept clean. Cost less to maintain than ordinary forms of construction. Anyone can erect. No putty or cement required. Felt rest for glass. Bridge for walking on.

Prices are reasonable.

Write today for all the facts about Anti-Pluvius Skylights.

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Manufacture also
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The non-soluble element is eliminated by a process peculiarly our own, from

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Works better on Combs and Cards, Spins as fine as any. Yields readily to soap and frees itself with greater ease than any other oil.

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A prominent Silk Finishing Co. of New York, reports that the "Howard Grease" as installed in our building together with the Howard Hangers and Bearings is working perfectly. ***After 8 months*** we find the boxes are still full, just as you left them. ***"Results produced have more than proven your claims of superiority."***

We carry a complete line of these Hanger Boxes as well as a full stock of Shafting, Collars, Couplings, Pulleys, etc. We are also prepared to figure upon complete equipment of power transmitting machinery. Our Booklet No. 12 is "worth while" the asking.

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FLEXIBLE AS THE BELT ITSELF

Far Greater Efficiency

in power transmission is given by belts when the *bulky, bumpy* old style leather lacings are discarded, and their place taken by JACKSON JOINTS, *thin and flexible.*

The Jackson Belt Lacer

laces a 5″ belt in 3 minutes at a cost for material of less than one cent.

Connection withstands 3800 pounds tensile strain.

Your shop needs it as much as the others. Catalog?

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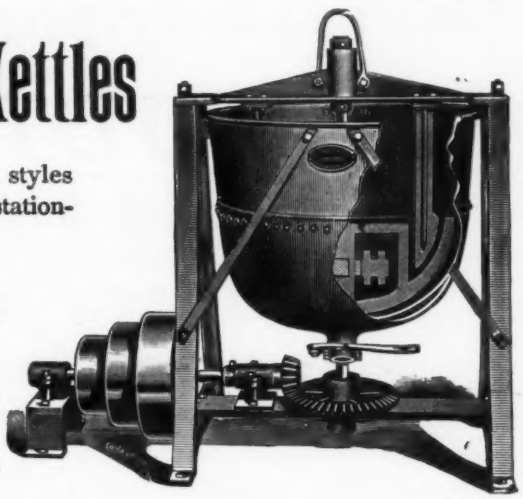
Steam Jacket Mixing Kettles

This cut represents one of our many styles of steam mixing kettles, made with stationary and removable stirrers.



E. B. BADGER & SONS CO.,

COPPERSMITHS,

66 Pitts St., - BOSTON, MASS.

Badger Fire Extinguisher.

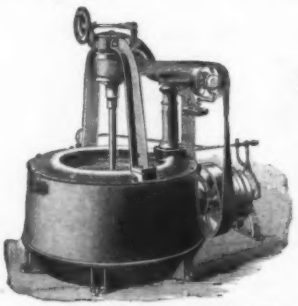
Crabbing, Steam Finishing, Opening and Folding, Tacking, Sewing, Squeezing Machines

BIRCH BROTHERS, SOMERVILLE, MASS.

ALBERT BIRCH, TEXTILE MECHANICIAN

Bleaching and Napping Machinery

Hydro-Extractors, Exhaust Fans, Dye Tanks and Tubs

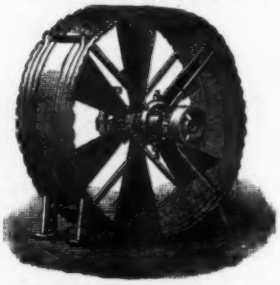


Adjusts itself to an uneven load, runs without vibration
Unusual capacity for high-class work

Bridger Hydraulic Cutting Press

Send for Catalog

Tolhurst Machine Works
Fulton St., and 6th Ave., Troy, N. Y.



Moves more air than any other fan made. Very efficient under widely varying conditions. Noiseless and does not obstruct the light

WILLIAM BODDEN & SON, Limited

The "BODDEN" Flyer

For QUALITY OF FINISH
For QUANTITY of PRODUCTION
HAS STOOD THE TEST OF YEARS

Sole Agents for U. S. A.

Thomas Mayor & Son, Olney Street, **Providence, R. I.**

Hard Wood Shoes

are desirable on all Baskets or Boxes, especially where there is to be continuous, heavy dragging. The shoes increase the weight but little, and a Basket thus shod is more desirable as it slides with less resistance and with less wear and tear to floors, than when made with the plain uncovered steel runners.

See our Descriptive Catalog and Price List No. 37.

MANUFACTURED ONLY BY

FIG. 22.

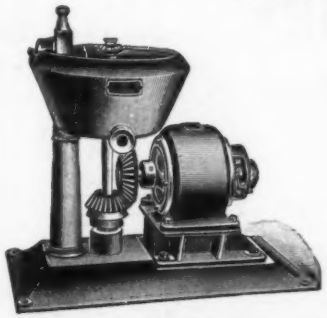
Sold direct or through Principal Supply Houses.

W. T. Lane & Brother, Office & Works **Poughkeepsie, N. Y.**

ELECTRICALLY DRIVEN

CENTRIFUGAL

Oil Separator



MOTOR WOUND FOR ANY VOLTAGE.

Separates oil from bolts, nuts, and scraps of all kind—oil that would otherwise be wasted, and makes it as good as it ever was, for further use. **Send for Catalogue.**

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American Tool & Machine Co.,

109 Beach Street, Boston, Mass.

Incorporated 1864. **Founded 1845.**

SALEM ELEVATOR WORKS

SALEM, MASS.

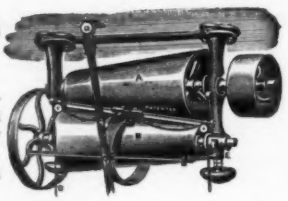
ELEVATORS

ESPECIALLY ADAPTED FOR MILL USE.

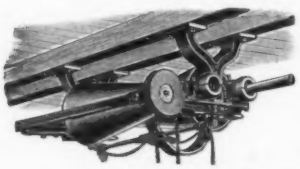
SEND FOR ILLUSTRATED CATALOGUE AND ESTIMATE.

Variable Speed Countershafts

The Evans Friction Cone Pulleys



will drive your machines at any desired speed from 1 to 6 by simply pulling a cord. They are guaranteed to do your work.



We'll furnish them for either floor or hanging use. Over Ten Thousand Sets in Operation in this Country and Europe. Send for Catalogue.

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G. Frank Evans. - Newton Center, Mass.

E. E. BURNHAM, Pres. L. E. BARNES, Treas.

The E. E. Burnham Co.

252 Lowell St., Lawrence, Mass.

Manufacturers of

Leather Belting

Cotton and Worsted Roll Coverers

General Mill Supplies

85% Pure Magnesia Steam Pipe and Boiler Covering

"AMERICAN" MACHINE TOOLS

FOR HIGH CLASS AND QUICK MACHINERY REPAIRS IN YOUR OWN PLANT

WONDERFUL SAVING POSSIBLE. CATALOG "N" NOW READY

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300 TO 350 NEW STREET, CINCINNATI, U. S. A.

PLANERS, LATHES, SHAPERS, RADIAL DRILLS

24-in. American Heavy Pattern Planer
Belt or Motor Driven

DINSMORE

Mill Sewing Machines

No. 9.—Portable Foot-Power Rotary Sewing Machine

It is especially adapted for use in Cotton and Woolen Mills, Bleacheries, Print Works at the Printing Machines, in Dye Works, Cloth Rooms, at the Fulling Mill, Shears, Calendars, Gigs, Drying Machines, etc., or any of the different finishing processes in textile mills.

Manufactured by the

DINSMORE MANUFACTURING CO.,

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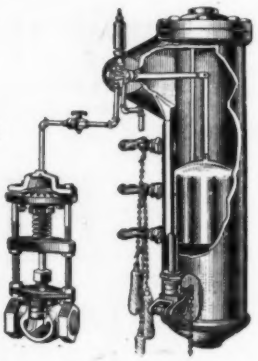
The

Berry

Safety Automatic Feed Water

Regulator



New England Office:
103 Bedford St.,
Boston, Mass.

Berry Engineering Co., Chester, Pa.

1866 1908

HARTFORD STEAM BOILER INSPECTION AND INSURANCE CO. HARTFORD, CONN

41st Annual Statement

January 1, 1908

Capital, $1,000,000.00
Surplus, 1,006,868.06
Reserves, 2,053,326.74
Assets, 4,060,194.80

The HARTFORD was the Pioneer Company in the field of Steam Boiler Insurance, and it is the only company which makes a specialty of and does exclusively a steam boiler inspection and insurance business.

The HARTFORD is the only company whose entire talent and energies are applied to the study of steam, to the scientific construction and installation of boilers, and to their periodical inspection by expert mechanics.

The HARTFORD is the only company whose entire assets and resources are held exclusively for the protection of steam users, and the payment of losses occasioned by the explosion of steam boilers and for no other hazard whatsoever.

The HARTFORD is now doing nearly nine-tenth of the Inspection and Insurance of Steam Boilers in the New England States, and nearly two-thirds of the entire amount done throughout the United States.

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F. B. Allen, Vice-President.
C. S. Blake, Secretary.
L. F. Middlebrook, Assistant Secretary.

Hartford, Conn.

15 to 200 H. P.

We are thoroughly familiar with the electric requirements of textile mills.
This is one reason why **C-W** induction motors make good in this field.
Crocker-Wheeler Company, Ampere, N. J.

An easy proposition

Extending an electrically operated textile mill is an easy proposition. You can spread out in any direction adding to existing buildings or erecting new ones, without having to consider the power transmission problem. A wire can be strung anywhere and, after being once installed, lasts indefinitely without any further cost or attention. Just consider, as a contrast, the cost of installing and care of maintaining a mechanical power transmission line.

Westinghouse Electric & Mfg. Co.

Atlanta Charlotte Philadelphia
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THE ONLY

Seamless Hard Fibre Roving Can.

Made from pure Vulcanized Hard Fibre, without seams or rivets, absolutely smooth, and the most perfect roving can ever produced.

Furnished with our Seamless Hard Fibre Kicking Band, metal or smooth turned fibre tops and metal bottoms.

WE ALSO MAKE A HIGH GRADE OF

Cordage Cans	Comber Boxes
Oval Cans	Doffer Boxes
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Gill Cans	Trucks and Cars

Write for prices.

STANDARD FIBRE CO.
SOMERVILLE, MASS.

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THE HENDERSON CARD

will increase your carding and improve the quality of your yarn with less waste, greater strength and increased production over any other system.

James H. Whittle Co. 150 Harlow St., Worcester, Mass.

Successors to the Cleveland Machine Works

Owners and manufacturers of the celebrated **Henderson Card** for Wool, Worsted, Cotton, Waste, Flax and Asbestos. Also manufacturers of

All Kinds of Woolen Machinery.

The Scientific, Practical, Economical Process of Trade-Marking

The **Kaumagraph Process** requires no ink, paint or powder. The impressions are absolutely clear and uniform on any class or texture of fabric. The stamps are made in all colors including silver and gold, and as the color dries instantly, the stamps can be attached as rapidly as the goods can be handled making this the most rapid process yet devised. The Kaumagraph stamps are being used with satisfactory results by the largest manufacturers in the U. S. and Canada.

For samples and further information write to the

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If you want belts that run straight, smooth, and without noise,

If you want belts that can run slack and yet develop the most power in severe service, or in changing temperature and humidity,

If you want belts that will last nearly a lifetime without sign of weakening,

If you would cut down your yearly belting expense,

If a power saving of from 25% to 33⅓% looks good to you,

Shultz Sable Rawhide Belting

will fulfill your requirements

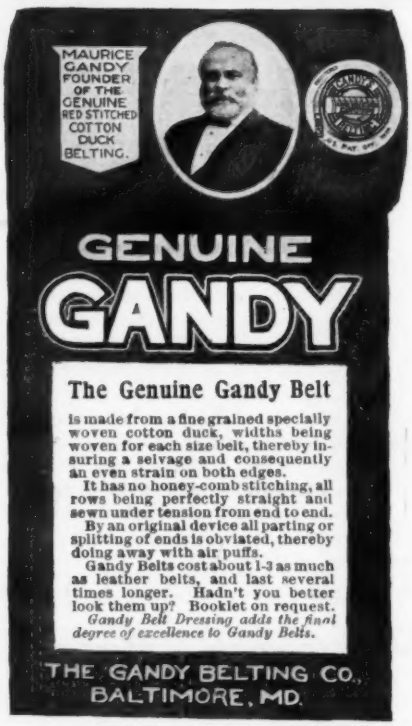
Sample sent free on request.

Shultz Belting Company

St. Louis, Mo.

New York **Boston** **Philadelphia**

No. 27

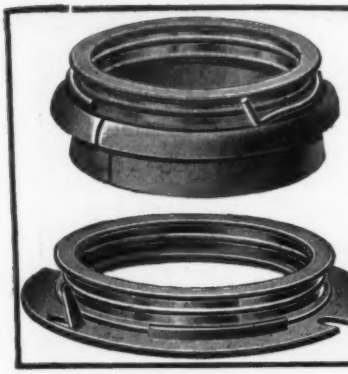

MAURICE GANDY FOUNDER OF THE GENUINE RED STITCHED COTTON DUCK BELTING.
GENUINE
GANDY
The Genuine Gandy Belt
is made from a fine grained specially woven cotton duck, widths being woven for each size belt, thereby insuring a selvage and consequently an even strain on both edges.
It has no honey-comb stitching, all rows being perfectly straight and sewn under tension from end to end.
By an original device all parting or splitting of ends is obviated, thereby doing away with air puffs.
Gandy Belts cost about 1-3 as much as leather belts, and last several times longer. Hadn't you better look them up? Booklet on request.
Gandy Belt Dressing adds the final degree of excellence to Gandy Belts.
THE GANDY BELTING CO.
BALTIMORE, MD.

Stock counts. We use only the best. English-cured raw-hide for some, close-trimmed oak-tanned leather for others. In

LOOM PICKERS

you want the best. You get the best of "Barlow."

JOHN W. BARLOW CO., Spicket Mill, Lawrence, Mass.



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AT

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AVENARIUS CARBOLINEUM

Wood Preserving Paint on

Floors, Sills, Joists, Dye Tanks and Vats

and other woodwork exposed to steam, acids or variations of temperature.

BULLETIN 29 UPON REQUEST.

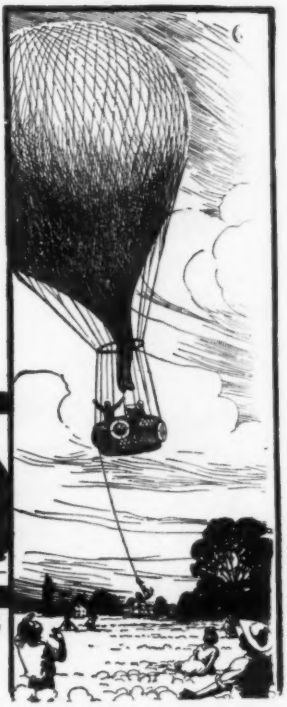
CARBOLINEUM WOOD PRESERVING CO.
347 West Broadway, New York

If you are using rope for baling you are helping to pay the gas bill to keep rope prices balloon high.

Rope is up—*Trojan Bale Tie* and *Band* is down.

Trojan Band is made plain or galvanized in coils from 2000 to 3000 feet without a break. Widths ½, ⅝, ¾ and 1 inch.

With the present high prices of rope Trojan Band and Buckle is a money saver.



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BRAIDING MACHINERY

ALL STYLES AND KINDS FOR FLAT AND ROUND BRAIDS.

SOLID SASH AND CURTAIN CORDS,

SHOE AND CORSET LACES, BANDING

AND ALL BRAIDED FABRICS.

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for WOOLENS, WORSTEDS, FELTS, etc.

Built Upright or Horizontal with Low Down Feed

Ventilating Fans a Specialty

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New Bedford Textile School

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4-PLY TWINE in

TRADE MARK

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Although the bulk of our loom harnesses for ordinary weaving is made of cabled twine, we make harnesses of 4-ply twine when desired, and these harnesses are just as good as it is possible for us or anyone else to make a harness of this character. They look well, weave well and wear well.

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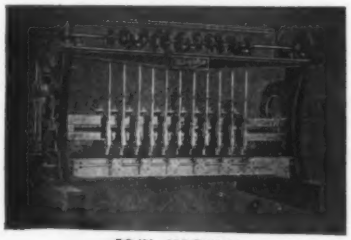
Biddeford, Me.

Loom Pickers **Lug Straps**



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L. F. FALES

MANUFACTURER AND BUILDER OF

SEWING Samples MACHINES

FOR ALL PURPOSES WHERE A NUMBER OF ROWS OF SEAMS ARE REQUIRED

BUILT WITH ANY REQUIRED NUMBER OF NEEDLES

DESIGNER OF SPECIAL MACHINERY

WALPOLE, MASS. U. S. A.

PAPER SLITTING MACHINES

Renold Silent Chain

High-Speed Power Transmission:

POSITIVE
QUIET
PROVED
EFFICIENCY
RATED
OVER 98%

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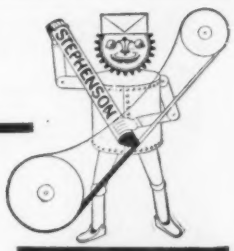

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that a Pound STICK of

Stephenson
Bar Belt Dressing

1⅞ inches in diameter is the size that best suits most men. It has just the right "feel" to it in your hands. ¶ Clean to handle; easy to apply (friction on the belt heats it,) always to be relied upon where a belt slips. STEPHENSON Dressing reflects credit on the maker, the seller and the user. Quality dressing for Quality folks. ¶ Your hardware store will sell you as little as a box of a dozen pound sticks, or give you a free sample to test.

In either case look for the Cog Wheel Face.

Red Label for Leather Belts. No ONE kind is good for ALL belts— You know that. Green Label for Rubber or Canvas.

WATER TOWERS
IRON OR STEEL

for Fire Protection and Domestic Service.

Built in all sizes.

Write for catalogue.

Plans and prices cheerfully given.

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Large lot of Cotton, Woolen and Worsted Machinery of all kinds for sale. Best Prices paid for first-class second-hand machinery.

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Manufacturers of

MACHINE WOOL COMBS

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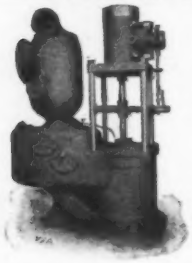
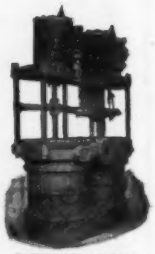


VERTICAL AIR PUMP AND JET CONDENSER

DUPLEX DURABLE PUMP

SIMPLE PUMP



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Mr. Manufacturer

Are you interested in the question of economic belt transmission, the saving of power, and a better output of your plant with **clean** belts? A practical demonstration of my

ACME PULLEY COVERING

will prove the above. Let me have a personal interview.

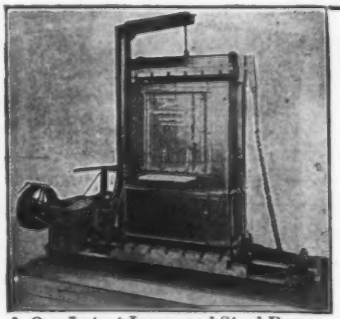
Chas. E. A. Olsen, 150 Nassau St., New York

A CLEAN SWEEP and lots of them by using the DIXIE TEXTILE MILL BROOM

It has no superior. Its only equal another Dixie.

A three string 20 lb. broom, equal to a 24 lb. wound broom $2.00 per doz.
A three string 22 lb. broom, equal to a 26 lb. wound broom $2.25 per doz.
A three string 24 lb. broom, equal to a 28 lb. wound broom $2.50 per doz.
Lower prices on larger quantities. Prompt shipments.
Send us a trial order. You are under no obligations if they are not entirely satisfactory.

The DIXIE is made only by the Dixie Broom Co., Box 321, Richmond, Va.



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Minnich Baling Press

for all kinds of products.

Must turn out more bales with less labor and power than any press in the market.

Send for circular.

Minnich Machine Works,

Lancaster Co. **Landisville, Pa.**

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LOWELL, MASS.

Card Grinders

Traverse Wheel and Long Roll

Particular Attention Paid to Repairing Grinders of All Kinds and Makes

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The Metallic Drawing Roll Co.

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Especially adapted for Cotton Mills. 25 to 33 per cent more Production Guaranteed. Weight Reduced 33 to 50 per cent. No Leather Covering Bill.

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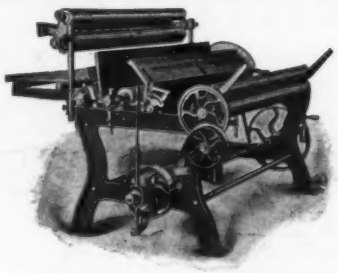

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Curtis & Marble Mch. Co.

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"Coronation"

Piece End Sewing Machines

on English stand sent on trial most anywhere.

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Bleaching, Dyeing & Finishing Machinery.

BIRCH TREE.

Sews any Fabric

Thick or Thin

Wet or Dry

Without Change

Fine Stitch or Coarse Stitch

Run true on card table—

have a very smooth finish

which allows the roving to be drawn from the can with practically no resistance, thus avoiding broken ends.

Vulcan Roving Cans

are light in weight, rigid, strong and very durable. Made of the best chemically treated fibre with tinned soft steel rings, accurate in size and perfectly round. Get our prices.

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James Hill Manufacturing Co.,

PROVIDENCE, R. I.

Brockway & Meckensturm,

MOODUS, CONN.,

MANUFACTURERS OF IMPROVED

TWISTING MACHINERY

OF ALL KINDS

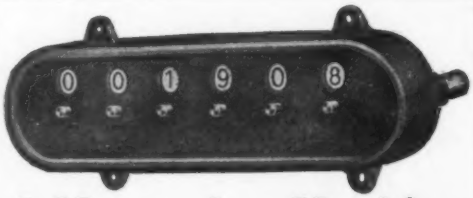
For Laying Line, Twine and Cord of all sizes.

Nichols' Patent Whirligig Twister for Hard Laid Twine.

Brockway & Meckensturm's Improved Geared Step Twister for Hard Laid Twine.

Warp Yarn Twisters, Sail Twine Twisters.

Prices and particulars on application.



A Measuring Machine

that shows in Yards the output of each machine.

A glance tells how the machines are running —enables you to keep output up and cost down.

Used by representative Cotton Mills and Bleacheries. Write for Catalog No. 18.

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THE BEST FIRE HOSE MADE.

(Trade Mark)

For use in **Cotton Mills, Woolen Mills and Factories.**

Seamless Woven and Rubber lined EUREKA COTTON HOSE has no equal. Send for circular and testimonials.

Awarded Gold Medal at the St. Louis Exposition, 1904.

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Sales Agencies in all the Principal Cities.
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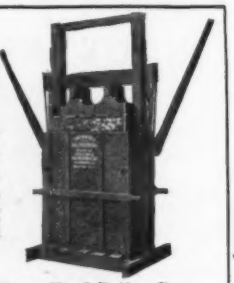
Waste

Cotton, Woolen and other textile remnants should be shipped in a compact, neat bale, instead of loose, in bags or crates. There is a saving in storage room, cartage and freight.



Circular 159 describes the Sullivan Hand Baling Press, Send for it.

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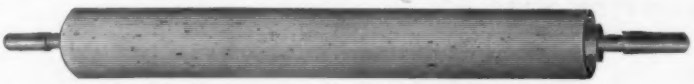
Rubber Covered Rolls for all Mechanical Purposes

Special Densities for each purpose giving results not obtainable elsewhere.

Rubber Covered Slasher Rolls



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The clock movement is thoroughly reliable.
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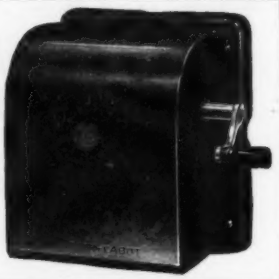

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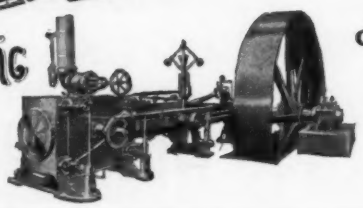

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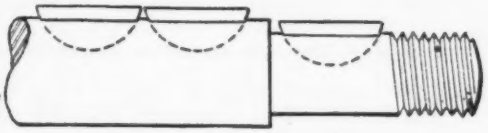

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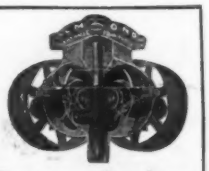
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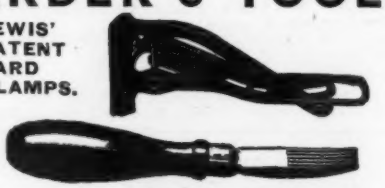
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Special Textile
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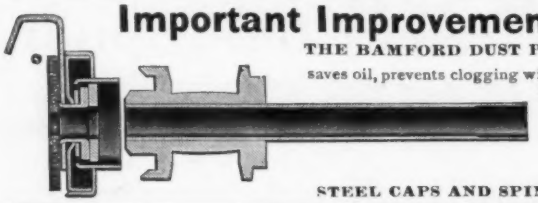
Important Improvement in Worsted Spinning.



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saves oil, prevents clogging with dust and lint, thereby insuring longer life to the tubes, saves labor, maintains uniform speed, **and most important of all,** makes PERFECT YARN. Refer to largest worsted mills.

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STEEL CAPS AND SPINDLES. Caps, Flyers, Tubes, etc., Repaired.

Thread and Silk **SPOOLS** of any description

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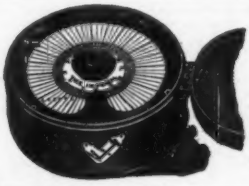

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Compels your watchman to do his duty. This clock will reduce your insurance rate. No complicated mechanism. Absolutely reliable. Full particulars.

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Established 1831.

Sewing Machine Belting, Press Boards, Belt Hooks, Lace Leather, Leather Belting, Latch Needles, Oilers of every description, Mill Baskets and Brooms, Mill Banding, Rings and Springs, Packings of all kinds, Fire Pails, Shears and Trimmers, Cloth Knives, Etc.

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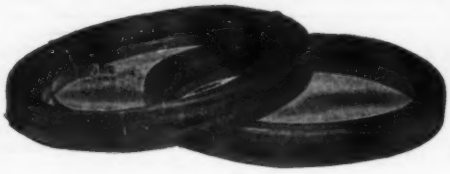

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with spring wire detector head for plain weaves.

Each detector wire controls two threads making this Stop Motion especially adapted for high sley goods. The position of the broken end is distinctly indicated.

WE CALL SPECIAL ATTENTION TO OUR

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for both plain and fancy weaves

Each detector wire controls a single thread and clearly indicates the position of the broken end. By a new form of drop wire, positive contact is assured and maintained, insuring instant stopping of the loom.

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We Challenge You

to find a bearing in your entire plant which Mica Flake Lubricant will not keep cool—or a hot bearing which Mica Flake Lubricant will not **cool while running!** Our challenge is contained in a **small envelope sample**, freely offered for demonstration purposes, of

Mica Flake Lubricant

Do you accept our challenge? Send for the test sample! **Mica Flake Lubricant is radically different, in principle and performance,** from Graphite or any other lubricating material. **Keeps the metal bearing surfaces actually apart—reduces friction—cools hot journals—lengthens the life of your oil—saves costly delays and break-downs—increases operative efficiency.**

Mica Flake Lubricant is **pure Mica—pure white—will not discolor or damage fabrics.** Write for literature, prices, and the test sample!

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To attach to end of steam pipe for heating liquids in tanks or vats. Modifies that disagreeable noise caused by the direct introduction of a steam jet and raises the liquid to the required temperature in about 70% of time required by latter. By its thorough circulation it distributes an even temperature throughout the tank. Price list upon application.

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Pressure and Gravity Filters
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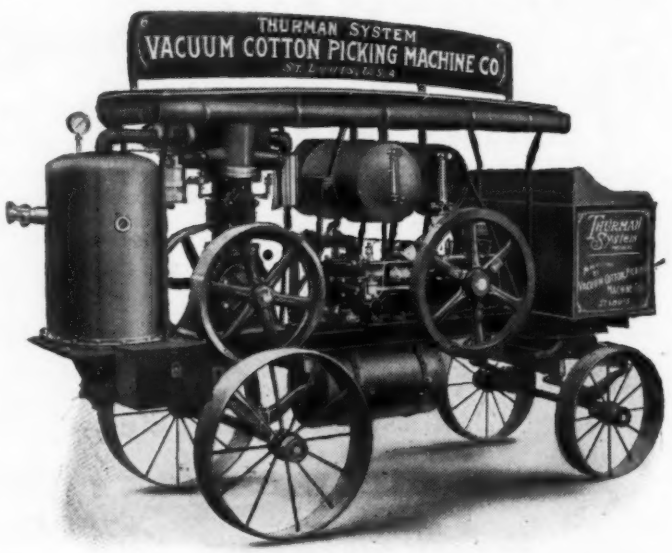
I have solved the problem of harvesting the Cotton Crop of the World and will save millions of dollars to the cotton growers, both by saving in labor and the cleanliness with which I do the work. I introduced to the world the first system of House Cleaning by Vacuum or Compressed Air method. This system is in daily use in hundreds of cities and thousands of homes, offices and public buildings and is a great mechanical and financial success. I own all the $750,000 of stock in the General Compressed Air & Vacuum Machinery Co. I am a mechanical engineer, a Southerner, and for years have studied the cotton harvesting problem. My Vacuum Cotton Picking Machine is now ready to go in the cotton fields and do the work and will be as great an improvement on cotton gathering as the harvester and self-binder were to the wheat harvest.



Gathers All the Cotton

The Thurman Vacuum Cotton Picking Machine (patented) is based on long and successful mechanical experience. It will gather cotton cleaner and better and faster than it is possible to do by human hands. Every machine is guaranteed to gather 100 per cent. of the cotton with no trash. I will have these machines in the field this fall gathering the cotton crop. They are ready to market now.

Waste in Harvest

The cotton left in the field each year in all parts of the cotton-growing regions of the world will run up into the thousands and tens of thousands of pounds—cotton literally wasted—thrown away, and as the years roll by it has continued to increase at a most alarming rate, especially due to the stubbornness of the negro cotton pickers.

Other Uses of the Machine

In addition to the specific purpose of gathering cotton the purchaser of a Thurman Cotton Picking Machine secures an engine which when not in actual use as a cotton picker can be put to additional uses, such as the running of wood saws, feed choppers, grinders, hay presses and the multitude of other utilities that are required by the modern farmer. You will readily recognize the great advantage of this feature, rendering as it does, the power available for general purposes when the machine is not in use in the field. Many farmers would, of course, purchase power for these various utilities under any circumstances, and such men can effect a very material economy by utilizing the power of these machines and saving the entire cost of additional power, unnecessary when this machine is on the place. To the many farmers of moderate means who would like to avail themselves of the various labor-saving conveniences and utilities, but who do not feel able to incur the cost of installing the necessary power for their operation, these machines solve the problem and place them at once in a position to take advantage of any or all of these conveniences, as they have their power already provided.

The Thurman Machine Has Solved the Problem

I want every cotton grower in the world to know about my machine. Later on I will have demonstrations in cotton fields so that the cotton planters may see its actual perfection. I will be glad to send you my Bulletin No. 1 about the machine if you will write me.

For Factory Facilities

I may offer some of the stock of the Vacuum Cotton Picking Machine Co. for sale later in order to extend my facilities for manufacture to meet the enormous demand for this machine, as indicated by the thousands of inquiries following my announcement of this invention in the daily papers of the South.

Word of Warning

My invention is protected by patents and I warn all thieves who are ready to acquire riches from the work of another man's brain, that I will prosecute infringers to the bitter end.

JOHN S. THURMAN,
President

Vacuum Cotton Picking Machine Co.,
4424 Olive St., St. Louis, Mo.

Just off the Press

1908-9 Edition

Official American Textile Directory

Compiled by the Textile World Record

What the Directory Contains

Over 13,000 Different Concerns Listed

A Complete Directory of Mills including Cotton, Woolen, Knitting, Silk, Flax and Jute Mills of the United States, Canada and Mexico together with the Dyeing and Finishing Works, Bleacheries, Print Works and other Textile Establishments, about 7000 in all.

Full information is given about each mill in almost every instance, viz: the name of the company or firm, names of officers, agent, superintendent, the character of goods made, machinery equipment, i.e., the number of sets of cards (or combs), the number of spindles, number of looms; whether the mill uses steam or water power, whether there is a dyehouse or not, the names of the selling agents or if the mill sells direct, and in many instances the name of the man is given who buys the raw material and supplies. In this section of the Directory, all the mills in one place are arranged under the head of that town, but so designated by boldface letters, that the kind of mill is determined at a glance, so that a person, looking, for instance, only for woolen mills, can pick them out instantly. This system of arrangement is conceded to be the most convenient of any as it groups all the mills in one town together and is self-indexing, while at the same time those interested in a particular class of mills, such as cotton, silk or knit, can find them as easily as if they were classified separately.

The Map Feature was originated by the Textile World in 1894, and is copyrighted. There are 19 of these textile maps, which show only the cities and towns where there are textile establishments. 19 maps.

An Alphabetical Index to the textile establishments in the United States; about 7000.

Mills with Worsted Machinery. A separate list is compiled of mills with worsted machinery for the convenience of those dealing exclusively with that branch.

The Yarn Trade Index. In this department are classified lists of manufacturers of different kinds of yarn who spin for the market. It gives the size of yarn spun and the form in which the yarn is put up, together with the selling agents of the mills, or, if sell direct. About 900 names.

Classified List of Manufacturers. This is a new section in which all the manufacturers of textile fabrics are listed under suitable headings showing the classes of goods made.

The Textile Mills in Mexico. This feature of the American Textile Directory is continued and brought up to date by the latest information. About 300 mills.

Commission and Order Section. In this department are classified lists of establishments doing dyeing bleaching, printing, finishing and mercerizing on order, sub-divided according to the class of work done. About 500 names.

Raw Material Section. In this department are complete lists of dealers and brokers in wool, cotton, shoddy and extracts, and wholesale rag dealers. About 2200 names.

Selling Agents and Dry Goods Commission Houses in the principal cities of the Unifed States, giving the character of goods handled. About 2300 names.

Textile Associations. Owing to the growing number of inquiries for information of the various associations a list of all the textile associations in the United States and Canada has been included in this year's Directory. The names of assaociations, officers and addresses are given.

Machinery and Supply Section. This contains a carefully classified index of builders of textile machinery and dealers in mill supplies. About 800 names and 500 headings.

Lord & Nagle Company

Textile Publishers, 144 Congress St., Boston

NEW YORK PHILADELPHIA CHICAGO

"CROSS CREEK" Sixes

For some time we have been calling your attention to the bonds of the Cross Creek Coal Company which owns 7000 acres of land in fee, simple, underlaid with the "Battle Creek" seam of coal, and now we beg to submit these photographs of the actual workings and conditions in the "Battle Creek" seam.

"Battle Creek" — note the ease of working.

A limited amount of the bonds are still unsold.

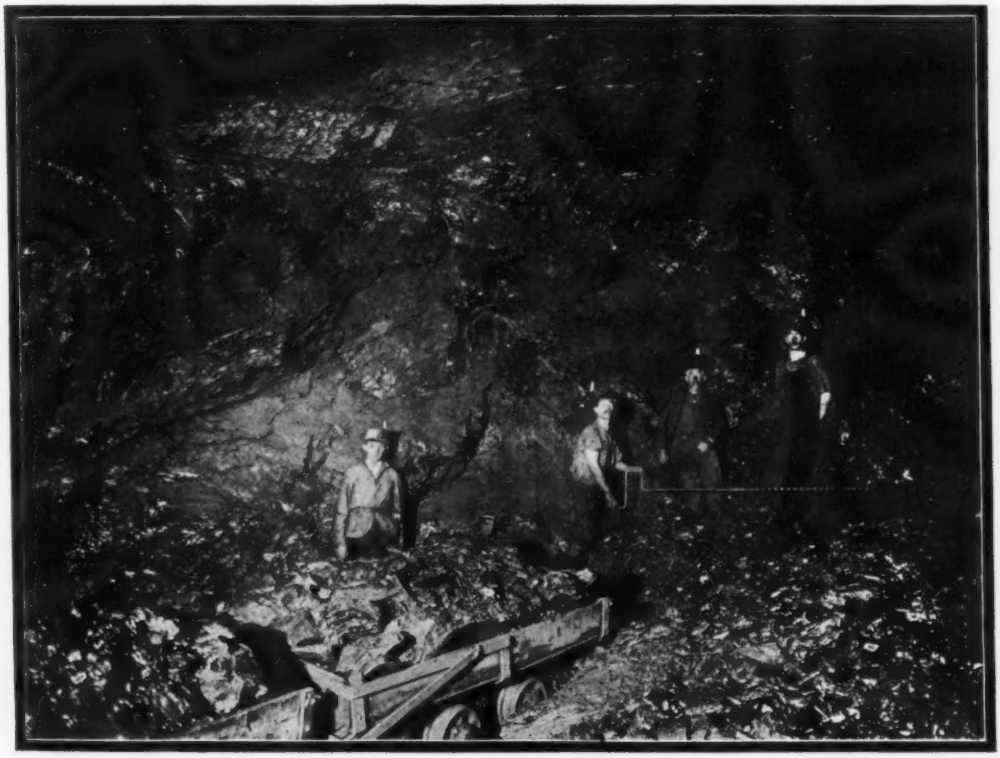
Write for full particulars.

Cross Creek Coal Company,

1006 Mutual Life Bldg., Buffalo, N. Y.

"CROSS CREEK" Sixes

These flash-light pictures were taken recently and are the best evidence of the great thickness of the vein and the excellent quality and large blocky structure of the coal. This coal costs less than $.95 to put on the cars and the average selling price is about $2.00 a ton; leaving a net profit of something over $1.00 per ton.



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50c. to $2.50

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By F. H. Greene; 104 Pages; Price 50c., postage paid.

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By D. B. Nightingale; 135 Pages; Price 50c., postage paid.

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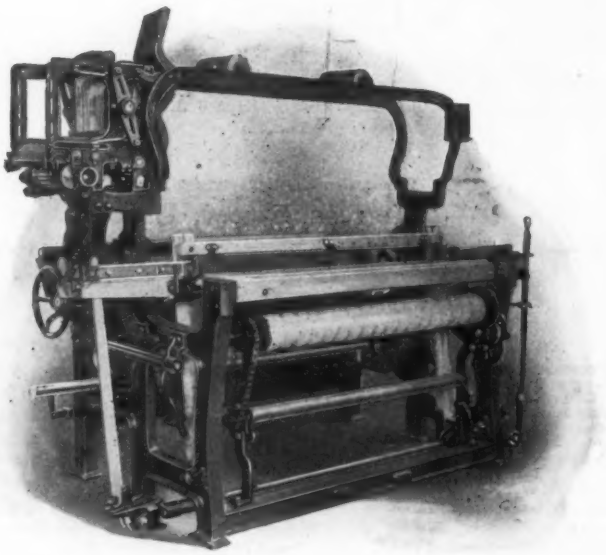

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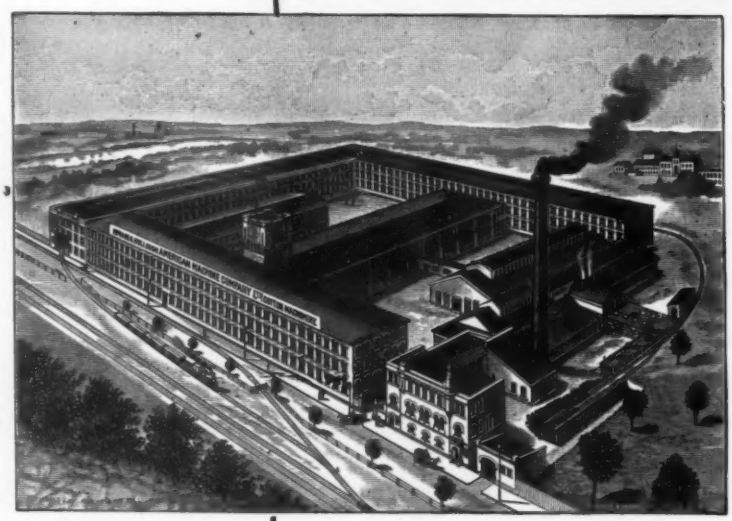

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The Textile World and Textile Record.

VOL. 35 (NEW SERIES.) August, 1908 No. 5

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Textiles and the Tariff.

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The writer of the above item knows no more about how wool and cotton manufacturers will "approach" tariff revision than he does about the tariff on textile raw materials. He evidently thinks there is a duty on raw cotton and that wool manufacturers will be so stupid as to seek to deprive wool growers of the protective duty on wool. In both cases he is mistaken. The American cotton grower is protected by natural conditions. A prohibitory duty on imports of raw cotton would have little if any effect on the price of cotton. If natural conditions should ever change so that the grower could make cotton in foreign countries with as economical an expenditure of energy as in the United States, and if then the lower wages in the foreign cotton fields should enable foreign growers to sell cotton at prices that threatened the American standard of living in the cotton belt, a protective tariff on raw cotton would be the remedy. But those suppositions are not within the range of practical affairs.

The manufacturers of wool recognize that the wool grower is as much entitled to protection by the tariff as they are. There may be a very few short-sighted wool manufacturers who have come on the scene within the past ten years, who want free wool. They deserve no consideration and will probably receive none. Practically all American wool manufacturers recognize that they must stand or fall with the American growers of wool. This is the broad gauge doctrine of protection to every American industry that can be protected for the general welfare. If the "New York Commercial" thinks we are wrong let it watch the fate of any stray textile manufacturer who may act on the supposition that he can have everything free that goes into his mill and everything protected that comes out of it.

Silk Culture.

For a number of years the Department of Agriculture at Washington has been experimenting with the raising of silk with the object of establishing the industry in this country. Congress provided an appropriation for the experiments and a miniature silk filature has been in operation at the Depart-

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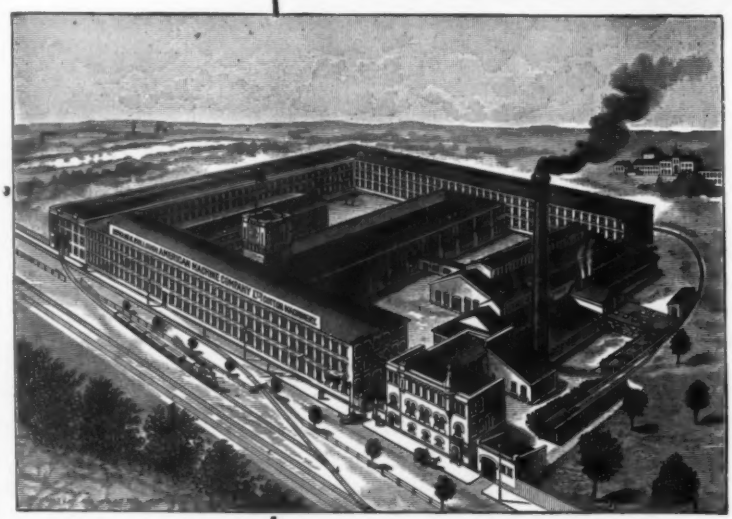

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For a number of years the Department of Agriculture at Washington has been experimenting with the raising of silk with the object of establishing the industry in this country. Congress provided an appropriation for the experiments and a miniature silk filature has been in operation at the Depart-

ment. We have recently been informed that the results have been so unsatisfactory as to lead to the decision to abandon the work. This outcome is what was generally predicted by persons well informed regarding sericulture when the work was begun several years ago. Doubtless the Department has acquired much valuable information on the subject of silk raising and the experience so gained should be placed on record. Those who opposed the exterprise claimed that neither the climate nor the labor supply in this country were such as to make competition with China and Japan possible. They pointed to the fact that the industry of silk raising in Europe was hard pressed by the competition of the Far East and was kept alive in France only by the payment of subsidies. These subsidies amounted in 1906 to $823,000 on 1,455,614 pounds of French silk.

While the government's attempt to establish the raising of silk in the United States has failed the general policy that prompted the undertaking deserves unqualified approval. That policy, inaugurated by Secretary Wilson, is to make the United States self-supporting in respect to all agricultural products. The only criticism that seems justified in the case of silk raising is that so much time, energy and money have been expended in an enterprise which experts condemned in advance while other branches of production offering exceptionally great opportunities, such as wool growing, have been practically neglected.

The International Silk Dyers' Trust.

The depression in business has caused dissension between the members of the silk dyers' trust, which was formed in 1906 by the combination of forty-seven of the leading French, German and Swiss firms in the silk dyeing trade. Last fall before the business depression the dyers' combine issued a notice that prices for dyeing would be increased 2 per cent. on Jan. 1, 1908. This advance went into effect on the date named and was enforced for several months by all the members of the cartel. Recently, however, the Swiss members accepted orders at the old price prevailing before the advance. The customers of the German dye works immediately demanded a like reduction by the German members. This was refused and the German members at once protested against the reduction in price by the Swiss dye works. The latter claim the right to terminate their membership in the combine at any time.

Immigration in the South.

In his paper read before the Cotton Congress at Paris last June, D. A. Tompkins, of Charlotte, N. C., told the European manufacturers plainly what was and is the only way to increase adequately the world's cotton supply, developing cotton growing in the Southern States. Mr. Tompkins also pointed out the chief requirement for such development, an increase in the labor supply, and advised the European manufacturers to do what they could to divert European emigration to the cotton belt. While Mr. Tompkins' position is right, it must not be forgotten that the remedy is one to be applied with the greatest care and only after the most thorough investigation. Better that the American cotton crop shall remain stationary forever than that its increase should be accompanied by the creation or aggravation of race issues in this country. The remedy might easily prove worse than the disease. For this reason it should not be applied promiscuously by getting European manufacturers to promote the emigration of the offscourings of Europe to the South in order that they (the manufacturers) may receive more American cotton to be made into goods for the natives of Asia and Africa. It should be applied only after careful investigation and with the approval of the people of the South. They have the right to exercise a controlling influence in this matter, not in any obstructive spirit, but with the object of developing the resources of the country by the immigration of those only who will become part of the white race now there. It was with this idea in mind that we asked G. Grosvenor Dawe, secretary of the Alabama Commercial and Industrial Association, Montgomery, Ala., to state his views for the benefit of our readers, particularly

those who live on the other side of the Atlantic.

Montgomery, Ala., July 20, 1908.

Editor Textile World Record:

Dear Sir:—I desire to acknowledge yours of the 4th, asking me to express some opinions regarding immigration to the South. I have no expectation in this letter of saying anything that approaches a final word on the subject, which has too many sides to be treated exhaustively in a letter.

So far as Alabama is concerned, there is a decided conflict of opinion as to immigration. I have heard large plantation owners say, with the earnestness of conviction:

"What we want here is labor to take the place of the shiftless negro."

The retort was immediately made:

"You will never get it, or if you get it, you would not want it; for a race of white men who would be willing to subject themselves to the rental system as applied to negroes, involving advances, obligatory payment of rent in cotton, etc., does not exist. White men will not come here and work contentedly unless they see before them a chance to operate land which they really own either now or in the immediate future, so you might as well surrender all hope of seeing the plantation negro superseded by the plantation white. Only whites of the lowest ideals would come for such a purpose and would not prove as tractable as the negro. Neither would you feel that such whites had grounds for hope of social equality."

The conviction is becoming stronger every day through what is called the black belt of Alabama (so called, as I may explain, because of the black soil), that the only way to secure satisfactory immigration is to cut up the plantations and sell them in small areas to white men who will farm intensively. As an indication of this, I may mention that Governor Comer, in whose family from 1837 onward has rested the title of a large tract of land, and who has frequently extended the area of the plantation himself, has now sold the property, for the plantation system has proved to be played out. Some other large plantation owners through the belt are considering the same disposition of their tracts. Along such a line of action lies the greatest hope of immigration in this state. An endeavor is being made to interest in such lands the Americanized North-European settler in the Western and North Western states; for there exists in this state exactly such a thought as you suggest in your letter: "It is very desirable to secure for the south the kind of European immigration that will assimilate with the old Anglo-Saxon stock now there."

Along such a line, the Alabama Commercial & Industrial Association, of which I have the honor to be secretary, an association devoted to a united and rapid development of this peculiarly rich state, received a letter from Congressman J. I. Burnett a few days since, the contents of which I think will interest you, because it voices as nearly as any one can safely tell, the sentiment that prevails through the greater part of the state.

There has been a considerable accession of Greeks in and around Mobile during the past two or three years, but the results from the point of view of land development were not satisfactory and they are now clustered in the cities, running restaurants, fruit stands and vying with the negro in shining shoes.

In the northern part of the state, which you will understand has practically the same problem of development as Pennsylvania owing to its iron and coal mines, there has been a considerable accession in the past few years from the Slav races they have not pleased, though they have done the required work; for their ideals of citizenship are very slightly developed and their sense of obligation to the state is curiously lacking. At the first breath of hard times, they scuttled in every direction, thoroughly disgusting all those who had been endeavoring to foster immigration along that line.

Just what you suggest in relation to the difficulties of assimilation experienced in Louisiana with the Italians would be duplicated here I am sure. There is latent hostility between them and those of Anglo-Saxon blood. There is another thing to consider in relation to the immigration that will ultimately come to this state. The breaking up of the plantation system will tend to hold cotton production within close limits; for intensive agriculture will preclude the devotion of large areas to cotton unless cotton can be made vastly more a money crop than it now is. As you are aware, the average production is about one bale to three acres. Intensive agriculture would produce a greater crop, but even then truck farming, alfalfa raising and hog raising (for cotton seed meal will enable the South to vie with the West in this industry) will receive greater attention.

There has long been a delusion that the only race able to work in the fields of the South was the negro. The rapid development in the southeastern and gulf counties of this state, on cutover lands, that is, lands from which the long leaf yellow pine has been removed, disprove utterly this statement. The white man can work in this cli-

mate more successfully than the negro, because he mixes his own personal interest and a high grade of intelligence with his labor.

I have endeavored to answer you as carefully as I could, for I am most anxious that right ideas should prevail in the North regarding the South. I am from the North myself and daily ashamed of former ignorance of this great region.

Yours sincerely,

G. Grosvenor Dawe, Sec.,
Alabama Commercial and Industrial Association.

The Fall River Sliding Scale.

Somewhat more attention than its importance warranted has been given to the following resolution passed last month by the Mule Spinners' Association of Fall River by a majority of 3 at a meeting attended by only one-seventh of the total membership of 350:

"Resolved: That the sliding scale agreement with the Manufacturers' Association has proved to be a failure so far as the workers are concerned; and that the Spinners' Association gives the necessary three months' notice to withdraw."

The sliding scale agreement is between the Textile Council, representing the operatives, and the Manufacturers' Association, representing the manufacturers, so that the agreement can be terminated not by notice of the Spinners' Association, but only by a notice from either of the two contracting associations.

Since the action by the spinners, referred to above, the carders' union has declared in favor of continuing the agreement; the loom fixers also favored a continuance of the sliding scale, but recommended that an effort be made to perfect it; while the weavers have voted to refer the question to the council with a request to try to have the agreement modified.

Nevertheless the resolution by the spinners is of considerable importance as representing a dissatisfaction with the working of the sliding scale among the rank and file of the workers. The facts, however, do not appear to warrant the sweeping statement in the spinners' resolution that "the sliding scale agreement has proved a failure so far as the workers are concerned." Wages at Fall River have fluctuated during the past twenty-five years as follows:

New Rate Began.	Per Cut.
1884, Feb. 4	18.30
1885, Jan. 19	16.50
1886, Mar. 1	18.15
1888, Feb. 13	19.00
1892, July 11	19.60
1892, Dec. 5	21.00
1893, Sept. 11	18.00
1894, Aug. 20	16.00
1895, Apr. 22	18.00
1898, Jan. 1	16.00
1899, Feb. 27	18.00
1899, Dec. 11	19.80
1902, Mar. 17	21.78
1903, Nov. 23	19.80
1904, July 25	17.32
1905, Oct. 30	*18.61
1906, July 2	19.80
1906, Nov. 26	21.78
1907, May 27	23.96
1908, May 25	19.66

*Average under old sliding scale.

To make still plainer the course of wages at Fall River we have prepared the accompanying chart showing the fluctuations during the past twenty-five years.

The present sliding scale agreement, which the Spinners' Association has condemned, provides that wages shall not go above a basis of 23.96 cents nor below 18. cents per cut. This agreement went into effect on May 25, 1907, bringing with it the maximum rate under the agreement and the highest since 1873. The operatives have received this high rate of wages for one year, during the last half of which the profits of manufacturers have disappeared and in some cases been converted into losses.

The sliding scale brought about on May 25, 1908, a reduction of 18 per cent., from 23.96 to 19.66 cents a cut. This was unquestionably a heavy cut, but it was a cut from the highest rate paid at Fall River in the last thirty-six years, and leaves wages nearly 10 per cent. above the minimum under the agreement, and 23 per cent. above the lowest wages on record, which prevailed in 1894 and 1898. Moreover the depth of the cut, 18 per cent., was nearly equaled under the old system of wage regulation by the strongest side, when in September, 1893, wages at Fall River were cut from 21 cents to 18 cents, or 14 2/7 per cent. Under the present sliding scale agreement wages have just been fixed

for six months on a basis of 19.66 cents, at a time when the actual margin is equivalent to a wage basis of only 16 cents.

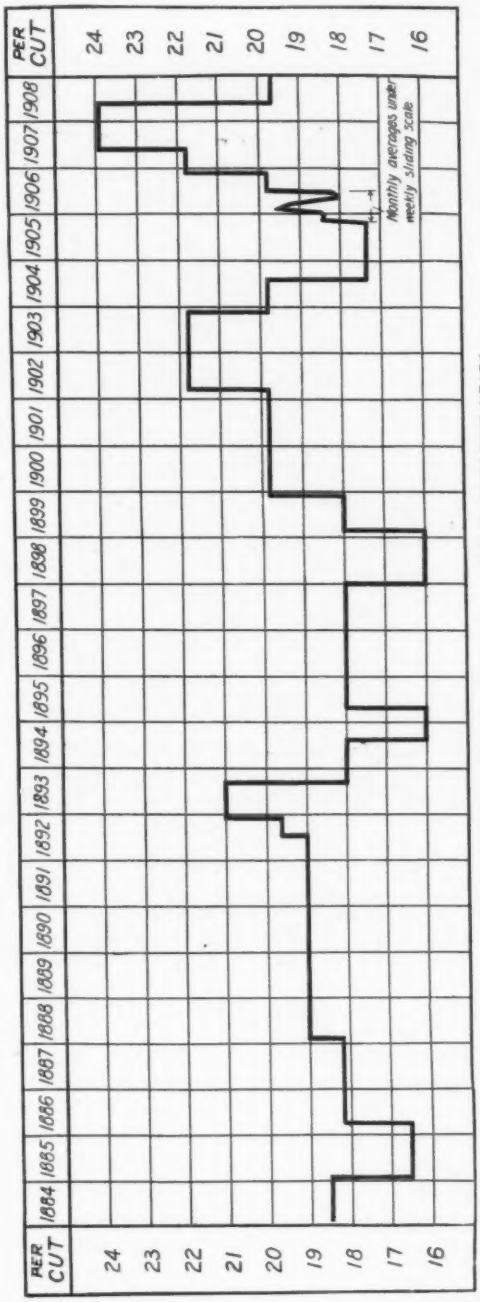
These facts certainly do not warrant the statement by the Spinners' Association that "the sliding scale agreement has proved a failure so far as the workers are concerned." We are by no means of the opinion that the present Fall River sliding scale is perfect. Nevertheless its operation has thus far been clearly to the advantage of the operatives and we hope that the hasty and ill-considered action of the Spinners' Association will not lead to the abandonment of an experiment in the automatic regulation of wages which should be perfected and, if possible, developed into a system to include a standard wage list for all the cotton mills of the United States.

Stealing Trade-Marks in China.

Nowhere is a trade mark of greater value in keeping an established trade than in China. The use of symbols has become second nature to the Chinese. Their written language has no alphabet, but consists of a vast number of symbols that convey ideas to the Chinese mind. This racial habit is illustrated in the reliance they place on a trade mark as indicating the character of the goods. An offer of a better fabric at a lower price fails to win the Chinese from the "chop" they have been using for years.

The Japanese are making a systematic attempt to displace British cotton goods in China with the products of their own mills. While they may be patient and ready to spend whatever time is necessary to accomplish this object, it is already evident that they are not disposed to spend any more time than is necessary. Knowing that, with the Chinese character as it is, establishing a trade in new chops in China would be the work of many years the Japanese have begun taking a short cut by imitating established British trade marks so closely as to deceive most observers.

The "Manchester (Eng.) Guardian" reports several striking cases of this kind, among them one in which the well-known and very valuable "crocodile" trade mark, owned by Sir E. Armitage & Co. of Manchester, was used by a Japanese firm, H. Konishi & Company, of Osaka. The genuine and fraudulent marks are shown in the ac-



COTTON MILL WAGES AT FALL RIVER, MASS., FOR TWENTY-FIVE YEARS.

companying illustrations and are so near alike as to deceive even as great sticklers for symbols as the Chinese.

THE BRITISH TRADE MARK.

THE JAPANESE IMITATION.

The protection of trade marks in China is of great importance to American as well as British exporters of cotton goods. There are firms that could better afford the loss of their mills and machinery than of the trade marks by which their goods are known to the foreign buyers. And yet these valuable marks are being stolen by unscrupulous competitors. The British government has taken the matter up with Japan with the object of protecting both British and Japanese trade marks. In view of the extent to which Americans are interested, our own government should lose no time in joining Great Britain in this effort to secure protection for manufacturers regardless of nationality.

The value of raw cotton imported into Japan during the first three months of 1908 was $18,249,446 against $18,312,576 during the same period last year. In 1907 the highest figure ever known to local merchants was reached, when silk sold for 206 taels per picul, whereas the average price of late years has been 162 taels.

British Khaki for American Soldiers.

DISCOVERY OF THE CONTRACTS.

In some way several New England cotton manufacturers discovered in June that the War Department had purchased a quantity of British khaki in Manila to be manufactured there by Chinese labor into uniforms for the American soldiers stationed in the Philippines and for the Philippine constabulary. Straightway a protest was lodged with the War Department against this discrimination in favor of foreign goods. This protest was the means of bringing the matter to Secretary Taft's attention for the first time on June 30th as he was about to retire from office because of his nomination for President. He immediately cabled to Manila ordering the contracts to be held up, but the reply was flashed back that it was too late, they had been awarded. He then made a statement to the President, one of his last official acts, informing him of the contracts and recommending that the order be rescinded as to future purchases, which was done at once. A few days later contracts were awarded to American manufacturers for a quantity of khaki more like the English fabric than are the domestic goods heretofore used.

STARTING AN INVESTIGATION.

Desirous of finding out more about these khaki contracts than was disclosed by the official statements from Washington and Oyster Bay, we addressed the following letter to the Quartermaster General of the United States Army:

Boston, July 11, 1908.

The Quartermaster General, U. S. Army, Washington, D. C.

Dear Sir:—Will you kindly send me samples of the British khaki which has been used for uniforms for the soldiers and constabularies in the Philippines, also samples of the American khaki which corresponds in grade to the British goods? I would also like particulars regarding the width, weight and price and any other information regarding the goods.

Thanking you in advance for the same, I am,

Yours very truly,

Samuel S. Dale,
Editor.

This letter was returned to us with the following endorsement:

Respectfully returned, by direction of the Quartermaster General with samples of English and American khaki and specifications for khaki uniform cloth, now used to manufacture khaki clothing for the U. S. Army.

The English khaki is made in two weights, Wigan 6 1/2 oz. and Stockport 8 oz. (about) to the yard and 28 inches wide.

English khaki is used to clothe the Philippine scouts and Philippine constabulary largely. It costs approximately 19 cents (U. S. money) per yard in the Philippines. The scouts and constabulary are mainly Filipinos.

The domestic material costs about 24 cents per yard.

William E. Horton,
Major and Quartermaster, U. S. A.

The four samples enclosed with this letter, two of which were British khaki, the other two, American, are shown at Figs. 1, 2, 3, and 4. We at once analyzed the four samples with the following results:

No. 1 British, from Wigan, Eng.

Weight, 6.3 ozs. per yd., 28 in.
Warp, 97 1/2 ends per inch, single 14s yarn.
Filling, 54 picks per inch, single 10.8s yarn.
Sizing, none.

No. 2 British, from Stockport, Eng.

Weight, 7.2 ozs. per yd., 28 in.
Warp, 86 ends per inch, single 10.2s yarn.
Filling, 49 1/2 picks per inch, single 9.5s yarn.
Sizing, none.

No. 3, American.

Weight, 8.1 ozs. per yd., 28 in.
Warp, 110 ends per inch, single 12s yarn.
Filling, 53 1/2 picks per inch, two-ply 17.8s yarn.
Sizing, none.

No. 4, American.

Weight, 8.1 ozs. per yd., 28 in.
Warp, 112 ends per inch, single 11.4s yarn.
Filling, 56 picks per inch, two-ply 20.8s yarn.
Sizing, none.

[All sizes are for the yarn as it lies in the cloth without allowance for take-up.]

Following are the principal points in the specifications for the American khaki, of which samples were enclosed with the Quartermaster General's letter:

Material. To be made from the best high grade long staple American cotton.

Weave. To be a 4-harness twill, three up and one down, twill to the left.

Construction. Warp to be made from single

13s yarn, with sufficient twist to produce a good smooth round thread. Filling yarn to be spun in single 20s and doubled, having proper twist in both single and double yarn to produce a strong and yet pliable thread. To contain not less than one hundred and six threads per inch in the warp, and not less than fifty-four picks of the 2-ply yarns in the filling in the grey or unfinished state, or approximating one hundred and twelve threads in the warp and fifty-two threads in the filling in the finished state. The twills to be round and full and contain not less than twenty-eight ribs or twills per inch in the finished fabric.

Weight. To be not less than 7 1/2 nor more than 8 ounces to the linear yard.

Color. To be khaki shade, fast to laundering,

FIG. 1.

English Khaki, made at Wigan, 6.3 ozs. per yard. Threads, 97½ x 54. Cost the U. S. Government 19 cents a yard or 48 cents a pound.

perspiration and climatic influences, such as sunlight, air and exposure incident to the military service.

No sample of the lighter fabric to be made by American manufacturers was received. Inquiries regarding it at the depot quartermaster's office at Boston elicited the information that no samples of the new cloth were available as it had not yet been made.

AN OFFICIAL EXPLANATION.

A statement, authorized by the President, in regard to the khaki contracts contained this explanation of the reason for buying English goods:

The Major-General (Wood) in command of the army in the Philfippines in a letter to the Department last winter recommended that the khaki uniforms for the army be bought in Manila because the English khaki which could there be had was more loosely woven, better suited to the tropics and was cheaper and the making was better and cheaper.

About the same time press dispatches from Manila quoted Philippine merchants as stating that the color of the English goods was faster to perspiration.

THE AMERICAN KHAKI FINER AND HEAVIER.

Let us see about this "better and cheaper" quality in the light shed by our analysis.

To begin with, the American goods have in the warp 12 1/2 more threads per inch than the Wigan cloth, and 24 more than the Stockport fabric.

In the filling the American cloth has as many two-ply threads per inch as the Wigan has of single threads per inch, and 5 more two-ply threads per inch than the Stockport has of singles. Counting each two-ply as two picks, the American goods have in the filling 107 threads per inch as compared with 54 threads in the Wigan, and 49 1/2 threads in the Stockport khaki.

Coming now to the weight, we find that the American fabric weighs 9/10 of an ounce per yard more than the Stockport and 1 8/10 ounces per yard more than the Wigan goods. The analysis of these four samples received from the Quartermaster General at Washington proves beyond dispute that the American cloth is greatly superior to the British in both texture and weight, and would cost much more than the British to manufacture.

A HIGHER PRICE FOR THE BRITISH KHAKI.

But, Gen. Wood may say, the British goods cost only 19 cents a yard, the American, 24 cents. Yes, but let us adopt what, in view of the variation in the weight per yard, is a much fairer standard for comparison, the price per pound of cloth, and then we have the following result:

No. 1 British from Wigan ...	per lb.	$ .482
No. 2 British from Stockport,	per lb.	.422
Nos. 3 and 4 American	per lb.	.474

Thus our analysis shows that by Gen. Wood's economy the U. S. Government obtained two British fabrics, much inferior to the American, paying 11 per cent. less for one, Stockport, and actually 1 7/10 per cent. more for the other, Wigan. And yet a public statement authorized by the President of the United States quotes with no word of disapproval the Major-General of the army in the Philippines to the effect that English khaki was "cheaper and better suited to the tropics." And we can hear Lancashire echoing, with a self-satisfied grin, "Ay! That's reet."

Undoubtedly the lighter and slazier cloth

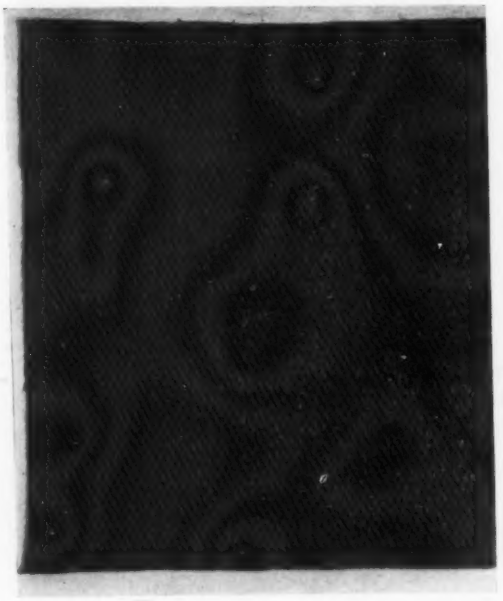


FIG. 2.

English Khaki, made at Stockport, 7.2 ozs. per yard. Threads, 86 x 49½. Cost the U. S. Government 19 cents a yard or 42 cents a pound.

"is better suited to the tropics." The American khaki with 112 threads per inch in the warp and 56 threads of double and twist driven into every inch of the filling is more like leather than cotton cloth. It is only by the exercise of considerable pressure that a sharp pin can be driven through the fabric. Handling it suggests the idea that it may have been designed to take the place of armor as a protection for the soldiers against the bullets of the enemy. One wonders how the dyer succeeded in penetrating the cloth with the dye. Imagine a human being encased in such a covering, marching through the swamps and valleys, and over the hills of tropical Luzon. No severer perspiration test could be designed, and it would not, therefore, be surprising if the color should give way sooner than in the case of the lighter and more loosely woven English cloth.

GOVERNMENT CONTRACTS.

At this point the question is naturally suggested, Why have not the American manufacturers made the lighter and cheaper goods for military purposes? Simply because they have not been allowed to do so by the authorities at Washington. The government officials have for years known of the demand for the lighter weight khaki, and for at least five years samples of light weight American khaki have been in their possession, but up to last month, July, the War Department has steadily refused to invite bids on any fabric lighter than 7 1/2 to 8 ounces per yard. Bids are invited and contracts are awarded for cloth made to certain rigid specifications. Take the specifications for the American khaki as an illustration. Every detail of the construction is specified, including not only weight, width, threads of warp and filling per finished inch, but also the size of the warp and filling yarn, the doubling and twisting of the filling, the threads of warp and filling per inch in the grey goods, and the number of 4-harness twills per inch. As if the weight of the cloth and the threads per inch did not of themselves determine the size of the yarn. As if there could be more or less than twenty-eight 4-harness twills in 112 threads. As if it made any difference how many twills per inch had been in the grey goods, as long as there were 28 per inch finished.

With every necessary and many superfluous details of construction specified the American manufacturers have but to obey orders. The goods are subjected to the constant scrutiny of official inspectors at the mill and in the departments. Any variation from the official standard results in the goods being rejected, and

to guard against this the manufacturer generally goes to the expense of putting in a few more threads or picks and keeping the goods full weight, as in the case of the two American samples we have analyzed. It is not for the American textile manufacturer of government goods to reason why. He has no business to think about making the cloth best suited to the conditions under which it is to be used. If he knows what is well for him he will as far as possible become part of the unthinking mechanism of his mill, making no suggestions, asking no questions. Any attempt at intelligent initiative designed to produce a cloth better suited for military purposes would expose the manufacturer to official suspicion and bring him into collision with a solid wall of blind, unreasoning official routine backed by the United States Government. It is this that leads manufacturers to turn with relief to the chances of the general market and, paraphrasing an old prayer, to exclaim, "Heaven preserve us from the devil and from the spirit of bureaucracy."

GEN. WOOD'S REQUEST.

And yet with this inflexible system enforced in the United States we find the Major-General in command of the army in the Philippines begging the War Department last winter to let him buy British khaki in the open market. There is no evidence that he asked to have American manufacturers supply the army in the Philippines with the lighter and slazier goods. As far as the statement authorized by the President goes, Gen. Wood's sole desire in this matter was to get permission to buy the British fabrics. And he got it.

This anxiety to buy British goods, coupled with the disregard of American mills, remains to be explained. The officers of the U. S. army in the Philippines are all men of intelligence and education. They must have known that the American manufacturer could make a cloth with as few threads in the warp and filling as were found in the English goods; that he would prefer to spin his filling yarn to 10s with one operation, as the British manufacturer did, rather than spin it to 20s, then double and twist it into two-ply in order to reduce it to 10s, as he had been forced to do; that he would be quite willing to reduce the weight of the cloth by nearly two ounces per yard; that he would consider himself highly favored if he were allowed to do all these things that reduced the cost of production and still receive the same price for his cloth; and that he would consider himself among the most fortunate of manufacturers if under these conditions of reduced cost he could obtain, as Leemann & Gatty of Lancashire

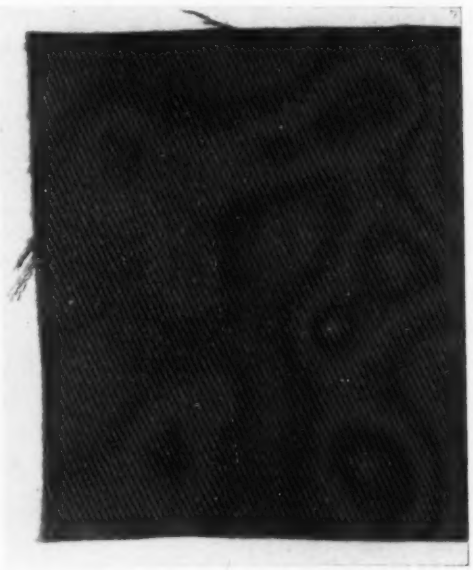


FIG. 3.
American Khaki, 8.1 ozs. per yard. Threads, 110 x 53¼. Cost the U. S. Government 24 cents a yard or 47 cents a pound.

obtained from the United States Government, actually more for his goods than was paid for the finer and heavier fabric. The army officers in the Philippines must have known all this. Then why did they give the contracts to Wigan and Stockport?

AN INVESTIGATION SHOULD BE MADE.

The facts so far disclosed call loudly for a thorough investigation, and in the face of these facts it will indeed be strange if every one concerned in the affair does not insist that it shall be made.

At a time when so much corruption is coming to light in both public and private

life, it is natural to agree with the assumption in the following paragraph from the "Record" of Biddeford, Me., that these contracts for British khaki are the result of graft:

> These have been dull times for New England cotton mill workers. Short time, shut downs and cut downs.
>
> Some of the New England mills, like the York, could have run more steadily and more profitably if they had some government orders for khaki, the cloth now used by the government to uniform its soldiers at home and abroad. The York a few years ago had some good contracts to make this line of goods for the government.
>
> Well, what about it?
>
> Only this: It has just been learned that Uncle Sam's soldiers at home and in the Philippines are being uniformed by khaki made by English mills. Big contracts have been let out by the War Department to British manufacturers while American cotton mills have been idle or running on short time.
>
> It is fair to infer that there has been graft in this connection. No doubt the British manufacturers made it an object for the army contractors to turn this profitable work their way. The Government going to England to buy cloth that is made at home to clothe its soldiers is a fine illustration of the benefits of protection.

But suspicion is not proof, and we prefer to hold all innocent of wrongdoing until the contrary is proved. This course is made easy by the fact that a reasonable explanation of the discrepancy in the contracts can be found in a blind adherence to routine at Washington and a departure from it through an error of judgment at Manila.

A NATIONAL POLICY IGNORED.

The most important feature of this khaki business is, after all, not the abuse of official routine in the United States, nor the question of whether official corruption lurked in these purchases of British khaki in the Philippines. It is rather the failure of executive officers of the government to recognize and abide by the policy of tariff protection as expressed in the Dingley act. That policy is based on the fact that there is no invariable standard of value for all the products of human industry; that the real price of a product is not the money that will purchase it, but the amount of labor and capital required to produce it. Because of these facts the people of the United States through their representatives in Congress and in the White House in 1897 imposed certain more or less arbitrary duties on foreign products in order to obstruct or prevent importations at money prices depressed by a depreciation of the money value of labor in foreign countries. That law of 1897, which has now remained on the statute book longer than any other American tariff act, seeks to maintain a uniform standard for production in the United States based on the real value measured by

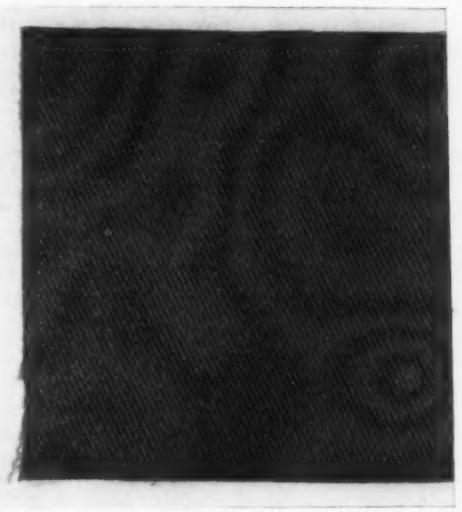


FIG. 4.

American Khaki, 8.1 ozs. per yard. Threads, 112 x 56. Cos the U. S. Government 24 cents a yard or 47 cents a pound.

the labor and capital expended in production and not on a fictitious value measured by money expended in the purchase.

OFFICIALS MUST OBEY THE LAW.

Under these conditions it is more important to have all the officers of the United States Government obey this law in letter and spirit than to have them trying to make an apparent saving of a few dollars on suction dredges at Panama or cotton khaki in the Philippines. They should understand once for all that this national protective policy, expressed by duties on imports for individual uses, must find still more emphatic expression by the prohibition of imports for government uses of all materials for the production of which the resources of the United States are adapted. This is

the inflexible rule of official procedure for all government officers from the President down until that policy has been changed by their master, the American people.

Textile Conventions and Associations.

AN ENGLISH CRITICISM.

The following good-natured criticism of American textile conventions, from the "Textile Mercury," of Manchester, England, will repay careful reading on this side of the Atlantic:

Various as are the notions that we have taken from America, British textile manufacturers have steadfastly neglected to adopt the holding of "Conventions." They meet and talk over their common affairs casually in the market-place or the train. They are in some cases members of Chambers of Commerce or of local associations, but they do not gather together like a flock of starlings and for day after day talk purely academic "shop." This may or may not be a pity. We are concerned only to point out that there is this much difference in habits, and—incidentally—to give a hasty outline of what would be done here were our manufacturers as up-to-date and American as some people think they ought to be.

In the first place, national associations with sufficiently wide and vague objects would be formed in each major department of the textile trades. Cotton, woolen, linen, silk and hosiery men would have organizations of their own, and once a year the members would mobilize on some center and hold a great palaver—half a debate and half a social "spree."

Following the model of the American Hosiery Manufacturers, proceedings would open with the reading of the minutes of the last meeting, and of the annual reports of two officers of the Association. The Convention would then lend respectful ear to the reports of a multitude of committees—including the Transportation, Membership, Grievance, Press, Legislative, Statistics, and Executive Committees. Supposing enough vitality to be left, the reports from sub-Associations would be dealt with. As reports, when taken in large quantities, tend to become tiresome, the managing officials would tactfully interpose an address carrying an attractive title. We note that one such bore the stimulating name "Trade Associations, a World Power: a Prophecy or a Pipe Dream, as you Choose to Regard It."

Following on this diversion, business would be resumed, and the first morning's sitting end with a supply of five-minute speeches. In the afternoon, reports of other committees would claim first attention, the monotony again being suitably broken by spirited addresses. The entertainment would spread over three crowded days of glorious life, and at intervals delegates would break into rhetoric over the "Advantage of Uniform Terms," "Ways and Means to Eliminate Trade Abuses," and kindred matters of great moment. They would go home breathless, perhaps, and rather more confused in mind than when they came; but nevertheless would have thoroughly enjoyed the festivities, and be eager for the next happy meeting.

If the soberer model of the American Cotton Manufacturers were followed, there might be fewer reports, and a more austere taste shown in discussion. Instead of prophecy we should have considered reflections, and should talk about turbines, cotton exchanges, testing, lubrication, cotton-growing, and coal, instead of about the illimitable infinite. But we hold our technical and educational discussions at other times and places, and by a nod or two and a brief interchange of opinions we transact perhaps as much real business as do these more elaborate gatherings. It is fortunate for us that our mills are not widely scattered like those of the United States. Our need of conventions is less, and for anything like congregations after the American model we may have to wait until England has grown to the size of America, and until our industries are lower in the scale of evolution than at present.

This English comment on our habit of holding textile conventions recalls the agitation a few years ago for the consolidation of the two leading American cotton associations. One of the strongest arguments in support of amalgamation was the reduction that would follow in the number of annual and semi-annual meetings. While no definite steps have been taken to unite the cotton associations, a sentiment has been developing in favor of such union and the trade is prepared for the consummation so much to be desired.

WANTED, LESS CONVENTIONS AND BETTER ONES.

Of national conventions Americans need not only a decrease in the number but a raising of the standard. The long distance criticism by our Manchester contemporary misses many of the glaring defects that are apparent to those who view the American textile convention at close range. One who looks over the list of papers that have been read before our textile conventions will be impressed with the large number of unimpor-

tant subjects and the absence of many topics of greatest importance to the trade. There have been many papers presented for no other purpose than to use the facilities of the associations for the exploitation of private enterprise. There are to be sure cases where some distinct advance in textile machines or processes cannot be separated from private enterprise, and whose discussion before a textile convention is justifiable. Our criticism is directed, not against such papers, but against the large number of papers in which the furthering of individual interests is the main object.

THE PUBLIC READING OF PRINTED PAPERS.

The authors of the papers should be men who understand their respective subjects. There have been too many instances where this has not been the case, and where the paper has been left to be read by title or by the secretary, or has been read by some one scheduled as the author who was unable to answer the simplest questions regarding the subject under consideration. Moreover the public reading of printed papers at our textile conventions is not only largely useless, but ridiculous, and a waste of valuable time. The subjects are generally so technical that the meaning of the papers cannot be made clear by the spoken word in a more or less crowded and noisy hall. They must be read and studied apart from a crowd when the reader can concentrate his attention. This can easily be done in most cases because nearly all the papers are printed and distributed several days in advance of the convention. And yet at our textile conventions we see manufacturers, busy men of affairs, who have left their places of business and traveled long distances, listening solemnly for hours to the reading of technical papers printed days before, frequently attempting to follow the reader word by word along the printed pages as he advances laboriously to the end. This useless reading of printed papers, with an occasional interruption by the announcement of an entertainment or excursion, occupies practically all the time, leaving but a few crowded moments for public discussion, the most valuable feature of such occasions.

AN INTOLERABLE SITUATION.

Running along in this rut the textile associations neglect the chief purpose of such organizations and the textile industry is left almost defenseless as far as common action is concerned in the solution of the many important questions that are constantly arising. This condition of helplessness becomes intolerable when the latent power and influence of the textile trade is considered. Here is an industry, which in its manufacturing branch alone gives employment to more people than does any other industry in the country. It is difficult to imagine a danger so great or a trade problem so difficult that a secure defense or a solution could not be found if the textile industry were organized so as to act as a unit.

No better illustration of the need of such organizaion was ever presented than at the present time when the leading textile associations are inactive and silent while the management of an association of all kinds of manufacturers is carrying on a vigorous attack on the protective tariff. This is but one illustration of a general condition which emphasizes the necessity for a change in the methods of our textile associations. What is needed is associations that will make sure they are right and then go ahead. This necessitates patient investigation, free discussion and a determination to act when a decision has been reached. Individuals cannot do these things. They are the work of trade associations in which the opinion of the rank and file finds expression in the acts of the executive.

THE TEXTILE CONVENTION IS A NECESSITY.

The "Mercury" criticism is timely and we hope it will stir American textile manufacturers to a reform of their convention methods. As our Manchester contemporary suggests, the long distances separating our manufacturers have much to do with making the American textile convention what it is. The manufacturers of a small country like England, and especially of a small and crowded county like Lancashinre or Yorkshire, may not need the periodical convention. Lancashire, with an area less than that of Delaware, has a popula-

tion one-third greater than that of Texas. As a result of these conditions life in Lancashire is a continuous textile convention, and thus in the course of time there has developed on the trains and in the market places of the little county palatine a code of nods, winks and monosyllables that make periodical palavers unnecessary. But the needs of the textile world cannot be measured by any such insular or provincial standard. Cooperation is a necessity among interdependent branches of industry. And when these branches are separated by long distances the convention becomes an essential instrument of such co-

The central group at the International Cotton Conference at Atlanta, just after the Conference had passed a resolution in favor of a permanent organization. This plan is now obstructed by the unwillingness of the Lancashire Federation to carry out the terms of the resolution.

operation. Europe and America find this to be the case even if Lancashire does not. It is a sense of industrial unity that brings the European cotton congress and the American textile convention into existence. It is this sense of world-wide interdependence that is developing the plan for a regular conference of the world's cotton trade, and it is Lancashire's failure to recognize fully this interdependence and the value of international cooperation, that is now obstructing the development of the international conference in the cotton trade.

THE CONFERENCE AT ATLANTA.

It was not always thus. As recently as last year the Lancashire delegates to the Atlanta Congress were among the most enthusiastic promoters of the international conference plan, which was approved unanimously by that Congress. After the vote was taken the delegates adjourned to the Capitol steps, where several hundred grouped themselves, taxing the capacity of a revolving camera to give the world a photographic illustration of international cooperation and good will in the cotton trade. We present herewith a small group in the center of this notable assemblage. Here we see cotton planters, spinners, manufacturers, machine builders and cotton dealers grouped together, their faces expressing more clearly than words ever could the desire for harmonious cooperation that they had registered by their votes but a few moments before. This is a scene to conjure with. It silences the weak excuses for abandoning the conference plan, that we now get from Lancashire. The record of it will remain as proof that if the cotton world wants international cooperation with all of the inestimable advantages it has only to reach out and take them.

A STRANGE SPECTACLE.

In the cotton trade no country, with the possible exception of the United States, is sufficient unto itself. No better illustration of this can be found than in Lancashire, which has half the world's cotton spindles, exports four-fifths of all the cotton goods she manufactures, and imports all the cotton used in her mills. Like dependence, varying only in degree, exists throughout Europe, in Japan, India, in practically every country where cotton is grown or manufactured into goods. The recognition of this mutual de-

pendence is what brought the International Cotton Conference at Washington into existence and led its successor at Atlanta to pass a resolution in favor of making the Conference permanent. The American associations stand ready to carry that resolve into effect, but the plan is now blocked by the Cotton Federation of Lancashire. We hope this delay will be but temporary and that the world will not permanently have the strange spectacle of international cooperation in the cotton trade urged by the country that needs it the least and rejected by the county that needs it the most.

A Standard Contract in the Yarn and Cloth Trade.

With the object of correcting the evils of unjust complaints, claims and cancellations the Cotton Manufacturers' Association of North Carolina, with headquarters at Charlotte, and the Southern Hard Yarn Spinners' Association have unanimously adopted the following resolution:

Resolved: That the recommendation of the President to appoint two Arbitration Committees, consisting of three members to each Committee, to represent the Cloth and Yarn branches of our Mills in the State, be adopted.

The working details of this resolution have been outlined by the associations as follows:

B = Buyer or Commission House.
S = Seller or Mill.

1st: B places an order with S, the delivery to be spot, weekly, monthly or otherwise, as may be agreed upon.

2d: After delivery begins, for some cause, just or unjust, B makes a claim against S.

3d: In the meantime S has bought cotton against the sale, and reclamation, cancellation, hold-up or lay-down will necessarily entail serious loss.

4th: B in the meantime insists upon his position and the result is a conflict and disagreement.

OUR POSITION IS TO SUBMIT TO ARBITRATION.

1st: S will be represented by the Arbitration Committee of this Association. B to appoint his arbitrators and in case of failure to agree, then these arbitrators select a third and the decision made is binding and must be accepted by S and B.

2d: Immediately upon any complaint being made against S which S and B cannot satisfactorily adjust, then S is to file his evidence in writing with the Arbitration Committee, and B, if he desires, is to do likewise. If, however, either decline to submit to the Arbitration Committee of this Association, then arbitration, as above proposed, must be accepted by both.

3d: If either should decline to arbitrate, then the decision will go by default and in favor of the one agreeing to accept arbitration.

4th: B has the same right to file complaint with the Arbitration Committee of this Association against S as S has in the above to file against B.

5th: The loser in each arbitration to pay the expenses of the arbitration.

6th: A copy of all complaints filed shall be sent to each member of this Association with a copy of the decision, and this to be used for future reference by the members of the Association.

7th: Each member of the Association will thus be advised of the nature of all complaints, who is the complainant, decision by the Arbitration Committee, etc., while now, each member knows only of his own troubles and oftentimes must submit to unfair and unjust settlements.

8th: This method of settling differences is absolutely fair to the honest buyer and seller and will eliminate sooner or later the unfair and unbusinesslike methods of any mill, commission house or buyer.

All the textile associations in the South have been requested to adopt the foregoing resolution and to appoint arbitration committees.

Average Yield of Cotton.

The following table, prepared by the Alabama Bureau of Cotton Statistics, W. H. Seymour, director, Montgomery, Ala., gives the average annual yield of lint cotton in pounds per acre in the United States, and in the eight leading cotton states for the past eight years:

	1900	1901	1902	1903	1904	1905	1906	1907
United States	190	166	183	164	203	188	201	166
Alabama	160	157	128	129	173	167	162	152
Arkansas	206	165	244	174	202	166	211	185
Georgia	163	163	173	147	204	211	162	181
Louisiana	264	288	255	232	270	153	267	190
Mississippi	164	193	214	203	230	183	212	217
N. Carolina	171	155	183	217	254	266	197	202
S. Carolina	152	131	198	160	215	234	171	218
Texas	230	155	141	146	173	167	221	117

The wide variation in the yield per acre shows plainly how unreliable the total acreage is as indicating the size of the crop.

During the year 1906-7 the quantity of raw cotton exported from India was about 369,830 tons, valued at nearly 70 millions of dollars. The principal buyers were Japan, Germany, and Belgium.

Methods of Establishing Grade Differences for Future Contracts.

An Examination of the Report of the Commissioner of Corporations.

BY S. J. CHAPMAN, M. A., M. COM.

Professor of Political Economy and Dean of the Faculty of Commerce in the University of Manchester, England.

(Specially Written for the Textile World Record.)

The commissioner of corporations is reporting on the methods and effects of Cotton Exchanges and Part 1 of this report on the methods of establishing grade differences for future contracts has just been issued. This particular subject is the storm-center of a recent heated controversy, and it stands apart as a distinct issue in the general problem of organized produce markets. For these reasons a separate volume upon it is to be welcomed, and for the same reasons an article upon the views expressed in this volume may be offered to the public. With certain of the conclusions reached I shall find it necessary to differ and I therefore desire at once to express appreciation of the thoroughness—the report covers 359 pages—and seeming impartiality of the investigations.

TWO METHODS OF DETERMINING GRADE DIFFERENCES.

A future contract is nominally based on one grade of cotton. At New York and at New Orleans—the two markets of the United States where "futures" are used—the nominal basis is middling cotton. Other qualities of cotton may be delivered against futures at premiums if they are above middling or at discounts if they are beneath it. These premiums and discounts are known technically as "differences." At New Orleans their amount is settled daily by the differences between the closing spot prices for these grades and the closing spot price of middling American cotton. In the absence of quotations the committee which declares them decides what they would most likely have been in view of the state of the market. When "differences" are so determined they are said to be settled on the "commercial difference" system. At New York at present differences are fixed every six months, and generally speaking we may say that the intention is to make them roughly what they are expected normally to be. Differences so determined are said to be settled on the "fixed difference" system.

WHY RECOGNIZE GRADE DIFFERENCES AT ALL?

But why have any differences at all? Why not base the "future" contract simply and solely on middling cotton? It is sometimes answered, "Because other kinds of cotton are also needed by spinners who desire to hedge against their purchases of these as well." But this is not a correct answer. No hedge with reference to demands for cottons of other than the basis grade is afforded when these other grades are made deliverable against the future contract, for the holder of the future is allowed to choose the cotton which will be delivered. If the particular grade of cotton which the spinner wants has become relatively dearer it will not be delivered to him, that is to say in the case in which it is important that the spinner should be offered the exact quality of cotton that he wants he would not be offered it. If this special kind of cotton had not become dearer in relation to other grades the delivery of any other kind of cotton would suit the spinner, since he could sell what he received and buy what he wanted without suffering loss.

The real reason for the recognition of grade differences is that if one grade only were deliverable against futures (a) this grade might be cornered when it was scarce and (b) in any event its price would tend to be artificially raised—and to a serious extent in years when it was relatively scarce—owing to the large proportion of it kept from productive use for delivery against futures. Cotton utilized for delivery against

futures performs a function analogous to that of gold in the currency. Suppose wheat were used as money instead of gold. Then during a famine it would be a serious matter if a large volume of wheat were reserved to facilitate exchanges. In the case of the retention of cotton as a basis for futures, the inconvenience is much less if sellers may at choice take that cotton which can most easily be dispensed with. This is the cotton naturally taken as a rule; hence the statement that it is "surplus cotton" which is the real deliverable basis against futures Surplus cotton will come from various lots but it will tend to be of the grade relatively in excess.

It is convenient then that creators of futures should be substantially free to select any cotton that they please for delivery. But clearly all grades must not count as of the same value. How then, we ask, should their relative values be determined?

IS THE COMMERCIAL DIFFERENCE SYSTEM THE RIGHT ONE?

It is insisted again and again in the report before us that the commercial difference system is the right one, and I am not prepared to deny that experience seems to demonstrate that the commercial difference system when it can be used is the best. We must not, however, be blind to its defects. It is not perfect; and in this report some of its imperfections are brought out. Sellers may operate so as to produce temporarily the differences most favorable to them in view of the deliveries which they are under obligation to tender. But in fairness it should be pointed out that the same objection holds in some degree of fixed differences. When a seller intends to deliver good ordinary it would pay him to get its price lowered if he has not yet acquired it, whether the difference to be paid is fixed or not. There is this divergence, however, between the two cases. With the fixed difference system in use an operation on the cotton exchange to affect prices is only of value to the seller when it precedes and has reference to the buying of cotton to deliver against his future: whereas with the system of commercial differences in use the seller has a chance of playing tricks with the market twice, first of bearing before buying cotton to deliver and then of bulling to raise the price at which it must be taken by the holder of the "future."

And not only is the commercial difference system the least objectionable in normal circumstances, for reasons which will become plain in the course of this article, but it is also the most natural. In every produce exchange when a basis contract was established this system was instinctively adopted. No obstacles were met with because originally produce exchanges existed only where all grades of the commodities to which they related naturally came in bulk.

UNIQUE POSITION OF THE NEW YORK EXCHANGE

The New York cotton exchange was no exception to the rule. But New York as a channel for cotton has been running dry. Very little cotton now passes naturally through New York. The bulk of the cotton crop now proceeds direct from the South to other countries or to American mills. Most of the cotton at present held in New York has been brought there artificially with a view to the needs of the future transactions which continue to take place there.

Whereas in the early seventies the spot business of New York amounted to more than one half million bales yearly, it has in recent years fallen to less than 150,000 bales on the average, and this in the face of the enormous increase in the country's production of cotton. In other words, where the spot sales in the New York market formerly represented 15 per cent or more of the total production, in recent years they have been on the average less than 2 per cent

In New York, then, we have today a cotton exchange which does not naturally get any cotton to speak of. Hence a tremendous problem has been created. For New York is so far away from New Orleans that it cannot draw cotton therefrom on demand for the purpose of its future contracts. Apart from the difficulty of delay, New York is not sufficiently in touch with the influences at work in New Orleans to use the supplies of that market for its daily "future" needs. What, then, had to be done in New York? Cotton it must have, for though very few futures are settled by delivery of cotton—a fact of which the report

before us does not make enough—possibilities of delivery must be provided if future dealing is to go on at all. Just as a bank-note in order to retain its value must be "convertible" into gold, so must a future in cotton, to have any value at all, be convertible into cotton. Convertibility, not actual conversion, is the essential requisite—not a single "future" need actually be converted into cotton if only convertibility be assured. And convertibility of such a "future" implies a reserve of cotton as convertibility of a note implies a reserve of gold. But in both cases an adequate reserve may be very small. It is this fact which has allowed the New York cotton market to continue after cotton has deserted it and accounts for the peculiar system in operation at New York.

The best way to seek the solution of the problem at New York is to examine historically what actually happened when cotton deserted New York. When the spot market declined there were no natural differences to read off from daily spot quotations. But differences were needed and they were, therefore, declared authoritatively at short intervals by a committee which tried to keep them on all fours with differences elsewhere. But it was soon realized that the work done was largely a sham, because deliveries were naturally governed rigidly by the cotton available in New York. The fixed differences were chiefly of value in settling the sorts of cotton which reached New York and for this purpose frequent revision was not essential. Obviously New York could not hope to possess the adequate supplies for meeting future contracts which exist in a market to which cotton naturally flows in bulk. It might have decided to get artificially all that it could conceivably want. But picture the expense. Much that it got it might never need. Had it tried to create an adequate reserve of every kind of cotton, the cost might have destroyed the New York Exchange, and, if it had not, more cotton would have been held up from use in New York than is at present, to the loss of everybody concerned.

SHOULD THE NEW YORK COTTON EXCHANGE CEASE?

It has been argued that the New York Cotton Exchange must cease or adopt a more economical cotton reserve system than that which prevails in a market naturally fed with large supplies of cotton. Why should it not cease? This question I am not competent to answer, but I may repeat the answer which I have heard, namely that the chief financial forces of the United States operate through New York and that therefore it is desirable for cotton dealing to be represented there. The report before us considers the question and does not recommend that the New York Cotton Exchange should cease.

ECONOMIZING ON THE ARTIFICIAL COTTON RESERVE.

Assuming that cotton dealing should continue on a large scale in New York, let us now face the question of its commodity basis. The real basis of the future, we have seen, is what has come to be known as "surplus cotton." It is to the general advantage that this should be the basis. The problem of New York is to get sufficient surplus cotton for her needs and as little of other cotton as possible, and the policy into which she has insensibly drifted does confine her holding to surplus cotton by *indirectly insuring that a premium shall usually be paid on deliveries in surplus cotton.*

Deliveries of surplus cotton are encouraged in the following way. Differences are periodically fixed and the cotton which is cheapest in relation to these fixed differences is naturally delivered. Thus, suppose there are only four grades of cotton, A, B, C and D. Let B be the basis and let the actual differences and those fixed at New York be as follows:

Actual differences.	Differences fixed at New York.
Cents.	Cents.
A, + .30	A, + .20
B, Basis	B, Basis
C, — .20	C, — .10
D, — .40	D, — .40

Then clearly in this case it would pay to deliver C against futures, because a gain of 10 cents a pound would thereby accrue in consequence of the divergence between the relative price at which C could be secured and the relative price at which it had to be taken on delivery.

The committee of the New York Exchange which settles the fixed prices need not select what they regard as surplus cotton. In fact they could not because the character of surplus cotton varies from time to time according to the varying relations between demand and supply. They achieve their end if they draw up a list of what they think will be the normal differences throughout the period for which their fixed differences last. Then the grade of cotton which becomes relatively cheapest with reference to this list will be delivered, and this, presumably, since it has fallen most in price relatively, is "surplus" cotton for the time being.

THE REAL BASIS AT NEW YORK.

In short the basis of the contract at New York is different from that at New Orleans. Middling cotton is not the real basis at New York but surplus cotton defined as that grade of cotton which is cheapest at New York in relation to what the Revision Committee regard as normal differences. This fact is not adequately appreciated by those responsible for the report before us, though we do read:

> Defenders of the system, however, claim that New York is naturally a carrying market for surplus grades rather than a market for grades currently in demand, and that consequently it can expect to receive, under any conditions, only those grades which for the time being are not in active demand by spinners. . . . Such overvaluing of grades by means of false differences by its very nature tends to attract, and has, in fact, attracted the surplus or temporarily undesirable grades of the crop rather than a representative assortment of grades, and has thus made the New York stock undesirable, as a rule, to the average spinner. To the extent that the buyer is thus discouraged from entering the New York market, that market is, unquestionably, narrowed. It is a fair question, therefore, whether the practice of establishing improper differences in the New York market has not tended, on the whole and in the long run, to keep cotton from going to that market rather than to attract it there. In any event, such a policy of overvaluing differences is improper and uncommercial. It is an attempt to establish arbitrarily a price in defiance of natural laws. The natural and equitable way would be to make the differences correct and let the basis contract price itself advance, if necessary, to attract cotton.

It is hardly correct to say that the spinner has been driven out of the New York market by arbitrary differences. It was because spinners left the market of their own accord that arbitrary differences were introduced. As the report says "the fixed difference system was adopted at New York only after the market had ceased to be one of the large spot markets of the country." It is granted that surplus cotton is attracted by the system; and it is half admitted that this is desirable. It remained only to see that no attempt is really made "to establish arbitrarily a price in defiance of natural laws" in order to avoid fallacious trains of reasoning such as the following:

> The underlying principle of a basis middling contract undoubtedly is that the seller, instead of delivering middling cotton only, may deliver other grades in lieu of middling. These other grades must, of course, be delivered on some basis. The natural basis unquestionably is their relative values compared with middling, at the time of delivery, as established in the spot market under the free working of the law of supply and demand. . . . The relative values of the various grades of cotton, and therefore the differences between those grades and middling, vary as the result of natural laws. This fluctuation in the differences is as natural a feature of the cotton market as are fluctuations in the price of middling cotton itself. This being the case, there is no sound reason why an exchange should arrogate to itself the power to "fix" these differences any more than it should assume to regulate or fix the price of middling cotton itself. Any such "fixing" of differences clearly is a defiance of the natural laws of trade.

Grant the first premise and the rest follows. But the first premise begs the question --the basis at New York is emphatically not middling cotton with other cotton as substitutes at the market valuation.

THE REVISION OF NOVEMBER 1906.

Now consider the much abused revision of November, 1906. It is complained that alterations in prevailing differences were not adequately reflected in the new fixed prices.

> It was confidently expected that the committee would recognize the widening in commercial differences which . . . had taken place, and which was still in progress in southern spot markets at the time the committee met. The belief was general that the committee would widen the differences for the lower grades materially as well as for the higher grades. . . . Instead of materially widening the differences off for low grades to correspond with these commercial differences in leading spot markets, the revision committee of the New York Cotton Exchange, at its meeting on Nov. 21, 1906, made only a very slight increase in the differences for the low grades. . . . Taking for the moment

only the grade of low middling . . . the committee increased the "off" for this grade only from 0.38 cent to 0.50 cent. At the same time the difference between this grade and middling in the New Orleans spot market was 1.13 cents, and this had been the difference for a week. The average difference . . . between middling and low middling cotton in twenty-one southern markets reported to the committee was 0.88 cent. In the case of good ordinary the committee increased the difference only from 1 cent to 1.25 cents off middling, although the commercial difference for this grade in the New Orleans market at that time was 1.94 cents, and the average difference for this grade in eighteen markets was 1.56 cents. The differences "on" middling established by the committee for the higher grades showed much greater increases. . . . This, however, was a matter of less interest to the trade since it was at once appreciated, in view of the tremendous shortage of these high grades in the 1906-07 crop, that practically none of these would be delivered on contract.

On the face of it, is the action of the committee unquestionably to be condemned? Could it not be defended as follows? It was plain within what range surplus cotton lay. This would still be the range of surplus cotton if some of the very low prices rose as they might have been expected to do since they were abnormally low relatively. Hence, as there would be no other revision for 6 months, it was desirable that the premium on surplus cotton should be fixed high.

The charge of conspiracy is a different matter. Of this charge I am obviously not in a position to speak, but we may note the following passage in the summary of the report:

This revision of November, 1906, and its consequent losses, caused intensely bitter feeling in the cotton trade. Dissatisfaction was aggravated because of a well-founded belief that some members of the revision committee were short of the market at the time the revision was made and thus reaped heavy profits from the subsequent fall in the contract price, and that others were carrying considerable stocks of low grade cotton which they could, by reason of the unduly narrow differences off for such grades, deliver on contract at an overvaluation. Charges were freely made that members of the revision committeee had deliberately abused their trust and had, in their own interest, established differences which they knew to be false.

Several members of the committee admitted that they were short of the New York market or were carrying cotton at the time of the revision. Undoubtedly such members made large profits as a result. Most of these members contended that this did not influence their votes. Others admitted that in their opinion it was practically impossible for members of a revision committee who were extensively interested in the market to avoid being influenced by personal considerations.

DEFECTS OF THE FIXED DIFFERENCES SYSTEM.

Whatever was the truth about the revision of November, 1906, it is evident that the private interests of members of the revision committee may influence the decision of the committee. "Such fixing of differences is left to a committee of men who may be, and some of whom usually are, heavily interested in the future market, and who are thus subjected to the temptation to fix differences improperly in order that they may reap inordinate gains." And there is another defect, namely, that the changes at revision being to some extent arbitrary, a new risk is introduced by the revision into dealings in "futures." For instance, there is no doubt but that heavy and unforeseen losses were caused by the revision of November, 1906. People had speculated in their anticipation of the judgment of members of the committee and anticipations generally turned out to be wrong.

At the same time other defects are alleged of which the chief is the destruction of the parity between "spot" prices and current futures.

It has been no uncommon thing during the past ten years for the margin between spot and contract prices to exceed 50 or 60 points. Moreover, the margin has not been constantly wide, but has fluctuated greatly. This is a very important point. It would be largely immaterial what the margin between the two prices was if it was only uniform, since operators in futures could then allow for it; but with frequent and severe fluctuations in the margin, such as have occurred in recent years, a very unsettling element is introduced into future transactions.

In this passage the report is misleading because its authors have not firmly grasped the idea that the real basis varies under the fixed differences system. As I have described it, the real basis is "surplus cotton" as defined by the fixed differences in relation to actual prices. There is a perfectly satisfactory parity between spot surplus cotton and current futures. The error lies in measuring parity with reference to "middling" cotton when this cotton is not the basis. In so far as a real defect is indicated, the question is whether "points on or off" futures for

the cotton needed by spinners generally fluctuate more or less under the "fixed differences" system than under the "commercial differences" system. I certainly cannot affirm a conviction that they would fluctuate more in the former case, apart from the jumps made at revisions. It has been argued for bimetallism that the level of prices would be steadier if payments could be made in the cheaper of two metals instead of in one metal; and the fixed differences system means that measurement of the general movements in cotton prices is made from the percentage movements of the grade which from time to time happened to be cheapest in relation to a table of what normally would be expected, instead of from the movements of one grade, namely, middling. The question can only be settled by an investigation. Under both systems there remains to those who hedge by "futures" the risk of variations in "points on or off."

RECOMMENDATIONS.

Monthly revisions of the fixed differences are recommended in the report in which we also read:

> It is probable that an average of the official quotations of several representative southern markets would give reasonable satisfaction, particularly if allowances were made for the relative importance of these markets, and more especially for discrepancies in local standards of classification.

With monthly revisions this settlement of the differences by averaging would be almost essential, for otherwise the incalculable element of arbitrary determination of differences would disturb the market twelve times instead of twice a year. The determination of differences by such averaging would remove the fear of revisions being governed by sinister interests, but the periodicity of revision would still result in jolting movements so that the advantages of the commercial differences system would not be completely secured. On the whole I am disposed to think that the proposed reform would be an improvement, though the settling of differences by averaging might necessitate the holding of a more costly cotton reserve in New York.

One way of minimizing the greatest objection to the fixed differences system—i. e., the possible operation of sinister interests—and at the same time leaving the committee free to decide what cotton to attract to New York, would be to declare that the new fixed differences should apply only to contracts made after the revision. Old contracts would remain on the basis of the old fixed differences. Only practical men could decide whether this arrangement would be feasible—certainly, if feasible, it would largely disarm any self-seeking members of the revision committee. It would still be open to them to over-value any stocks that they held, but they could not enhance the value of their contracts by altering their basis.

As regards the provision of a hedge for spinners we must hope for the further introduction of the plan of "deferred deliveries" or for the development of "futures" in differences. In the deferred delivery a spinner makes a contract with a broker to receive at stated times in the future, and in suitable quantities, the exact quality of cotton that he wants. The broker takes the risk of movements in "points on or off." Against the risk of general movements in cotton prices the broker may hedge by buying futures. This contract is becoming increasingly common in Lancashire. And there is no reason why a system of futures in "points on or off" should not in time emerge as another possible hedge for the broker. The result that the market would be rendered more complicated cannot be avoided. If it is too complicated for the spinner to venture into it, his wisest course would be not to venture but to deal only with his broker.

Meeting of the National Association of Cotton Manufacturers.

The 85th meeting of this Association will be held at Saratoga Springs, N. Y., on September 29-30. Special trains will start from Boston and New York. An interesting program has been arranged by Secretary Woodbury, including excursions to the General Electric Co., Schenectady, and to Lake George.

The cotton production of the German colonies exceeded 3,000 bales in 1907, or more than double the quantity realized in 1906.

Seasonable Fabrics.

DRESS GOODS.

The dress goods market has shown considerable activity within the past few weeks, a great many buyers have visited the market during this time completing their fall and winter purchases. Generally speaking, the dress goods business has not been as good this season as one year ago. While the sales on higher priced novelties have been satisfactory, the popular priced fabrics are not in as good demand as was hoped for earlier in the season.

Broadcloths are selling very freely and seem to be the most popular fabric in the

FIG. 1.

dress goods line. The trade are calling for these goods in lighter weights than heretofore.

The demand for piece dyed goods is very satisfactory. These goods are being shown in some very exclusive designs and patterns in chevron, herring-bone and diagonal weaves.

In the fancy dress goods market stripes still predominate over checks and plaids. The trade that are buying fancies do not feel inclined to buy very freely in exclusive designs, but are taking more to staple weaves. Fig. 1 shows a desirable 42 inch fancy chevron sold by Boessneck & Broessel at 67 1/2. Fig. 2 shows a neat 50 inch staple sold by Franz Merz at 72 1/2 cents a yard.

Checks are receiving attention in the better grades. It is predicted that checks will be popular during the entire season. Voiles, panamas, henriettas and other plain weaves are being taken freely. Serges are gaining favor in the market. The trade are calling for these goods chiefly in the hard finish.

Dress goods buyers have been favored this season with prompt deliveries on all of their merchandise, even on orders that were recently placed. In former years many of the mills were sold up long before the buyers reached the market, but this season deliveries have been a secondary matter.

COTTONS.

Conditions in the cotton goods market continue to improve, prices on staples have been advanced about 1/4 of a cent a yard. Orders are being placed with a much better feeling than has existed for some time. A number of the larger buyers feel confident that prices have touched bottom.

The advance of 1/4 of a cent a yard on standard prints was not a surprise to the trade, as these goods were very cheap at 4 3/4 cents.

The demand for apron ginghams continues to be very active. The agents are holding these goods at value, which indicates that an advance may be expected to take place very soon. Fall and winter dress ginghams are selling very well.

The demand for bleached and brown cotton goods in all grades has been very good. Muslins and cambrics remain at about the same prices that have prevailed for the past 30 days. A few have recorded slight advances.

The manufacturers of sheets and pillow cases are receiving a great many orders. Slight advances are reported over the low prices that were made earlier in the season. A healthy business is looked for in this branch of the trade.

Fall orders on outing flannels and cotton blankets have been freely placed in the past 30 days, especially by the smaller buyers, who have been holding off with their orders, hoping that some changes might be made whereby they could secure their fall stocks at lower than the opening prices.

Printed cotton fabrics, such as lawns, batiste, etc., have been selling very well with the jobbers at reduced prices. Side bands

are in demand, both for immediate and later deliveries.

Silk and cotton mixed fabrics have become a very important factor. A number of mills have gone on these goods in a very large range of designs and colors. The orders already booked for this class of merchandise have been very satisfactory.

While the converters of cotton linings are not doing as large a business as last season, they report that the situation is very satisfactory, and that the trade will increase as the season advances. They are offering their

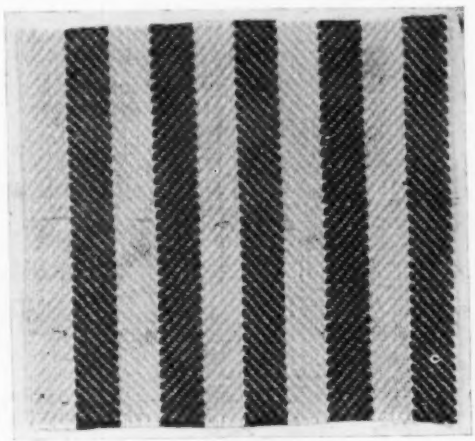


FIG. 2.

goods at much lower prices than have been quoted for some time.

SILKS.

With raw silks showing a tendency toward higher prices, the general silk market has responded with a steady improvement. Buyers are placing their orders for immediate and later deliveries on all grades of broad silk. Realizing that these goods will not be any cheaper they have gone ahead, placing their orders with much more activity than was expected earlier in the season.

While the business that is being taken this season is not as large as last year, the manufacturers feel confident that a healthy trade will materialize throughout the entire season, which will help greatly in putting the market in its normal condition.

Black taffetas are offered at very low prices. Sales on these goods are being made in all sections of the country. Slight advances are expected in the near future, as present quotations are below the cost of manufacturing.

Satins and satin faced goods are in great demand. At the present time they are the leading sellers in the market. These fabrics, especially in the better grades, appeal very strongly to the trade in all of the new fall shades.

Fancy silks are receiving attention, but are not selling as freely as was expected. The manufacturers of fancies are not making up as large a surplus stock as in former seasons, and it is predicted that the better grades will be scarce later in the season. Chevron, herring-bone and hair line stripes are the favorites. Pelgram & Meyers are offering a line at 85 cents a yard, 19 inches. Valentine & Bentley have a line at 92 1/2, 20 inches. These have been very good sellers.

Plain colored taffetas are in good demand. These goods are being offered at about 25 per cent. less than they were last season. This reduction alone has been enough to create a demand for these goods, as the buyers feel that they can handle and resell them to much better advantage than heretofore. Velvets and velveteens are very strong this season. Orders are being received for these goods in all of the latest shades which has encouraged the trade very much.

In Germany the women earn 38 cents for knitting a dozen pairs of gloves which absorbs four days' work of ten hours each, thus netting less than one cent per hour.

The world's supply of raw silk for the year ending June 30, 1907, is estimated to be 42 million pounds, of which the United States took about 38 per cent.

The total value of shipments of domestic merchandise from the United States to the Philippine Islands in the year ending June, 1907, amounted to $8,657,956.

From Broussa, the silk-producing district of Turkey, there were exported in 1905 132,550 pounds of cocoons, mostly to Italy, and 948,145 pounds of raw silk, of which 90 per cent. went to France.

National Association of Wool Manufacturers.

On Tuesday, July 21, the forty-third annual meeting of the National Association of Wool Manufacturers was held at the Eastern Yacht Club, Marblehead Neck, Mass.

The regular meeting, which is usually held the first Wednesday in February, was postponed this year for various reasons, and a change from the usual winter banquet with set speeches seemed fitting for this more informal mid-summer season. President Whitman's suggestion of an excursion by water to the seashore with a dinner there was heartily approved by the executive committee at a meeting held in Boston, June 29, and since he, himself, generously provided the comfortable steamer, General Lincoln, stored with refreshments for the trip, and the excellent 8th Regiment Band of Lynn to enliven the time with music, all the "ingredients" were on hand for a delightful day.

ANNUAL MEETING.

The meeting was called to order by President Whitman.

On motion the reading of the records of the last annual meeting was dispensed with.

Owing to the lack of time the secretary's report was not read, but was ordered to be printed.

The report of the treasurer, which had been audited according to the by-laws, was read and approved. It showed that all bills had been paid and that there was a comfortable balance in the treasury.

The following officers were elected for the current year:

President: William Whitman, Boston, Mass.

Vice-Presidents: Charles H. Harding, Philadelphia, Pa.; William M. Wood, Boston, Mass.; Frederic S. Clark, No. Billerica, Mass.

Secretary and Treasurer: John Bruce McPherson, Boston, Mass.

Executive Committee: John N. Carpender, New Brunswick, N. J.; James Dobson, Philadelphia, Pa.; Joseph Metcalf, Holyoke, Mass.; Abiel J. Abbot, Graniteville, Mass.; John P. Wood, Philadelphia, Pa.; William C. Greene, Peace Dale, R. I.; Charles A. Stott, Lowell, Mass.; Thomas Oakes, Bloomfield, N. J.; William Bloodgood, New York, N. Y.; John Hopewell, Boston, Mass.; George E. Kunhardt, Lawrence, Mass.; A. Park Hammond, Rockville, Conn.; J. R. MacColl, Pawtucket, R. I.; Francis T. Maxwell, Rockville, Conn.; J. F. Maynard, Utica, N. Y.

Standing Committees: Finance—Louis B. Goodall, Sanford, Me.; Frederick C. Fletcher, Providence, R. I.; C. W. Leonard, Boston, Mass.; Andrew Adie, Boston, Mass.; Samuel Rindge, Boston, Mass. Statistics—H. G. B. Fisher, No. Adams, Mass.; A. Albert Sack, Providence, R. I.; H. A. Francis, Pittsfield, Mass.; Wm. M. Chase, Leominster, Mass.; N. F. Greeley, Boston, Mass. Raw Material—A. J. Root, Cohoes, N. Y.; Gordon Dobson, Pittsfield, Me.; Wm. R. Cordingley, Boston, Mass.; Chas. B. Rockwell, Bristol, R. I.; Geo. W. Benedict, Boston, Mass. Machinery—Chas. H. Hutchins, Worcester, Mass.; B. F. Mellor, Plymouth, Mass.; George G. Davis, No. Andover, Mass.; George M. Bassett, Worcester, Mass.; George O. Draper, Hopedale, Mass.

The meeting then adjourned for luncheon, following being a list of those present:

Hon. Carroll D. Wright, President, Clark University, Worcester, Mass.
Col. Albert Clarke, Secretary, Home Market Club, Boston.
Edward Stanwood, Secretary, Arkwright Club, Boston.
C. J. H. Woodbury, Secretary, National Association Cotton Manufacturers, Boston.
C. J. Bodfish, Managing Secretary, American Woolen Co., Boston.
J. F. Maynard, Treasurer, Globe Woolen Co., Utica, N. Y.
John Hopewell, of L. C. Chase & Co., Boston.
F. T. Maxwell, President, Hockanum Mills Co., Rockville, Conn.
Joseph Koshland, J. Koshland & Co., Boston.
George E. Kunhardt, Lawrence, Mass.
J. F. Brown, of Brown & Adams, Boston.
Frederic S. Clark, Treasurer, Talbot Mills, North Billerica, Mass.
Andrew Adie, Treasurer, Moore Spinning Co., Boston.
John B. McPherson, Secretary, National Association Wool Manufacturers.
Wm. J. Battison, General Agent, National Association Wool Manufacturers.
Louis Baer, Eisemann Bros., Boston.
James G. Bailey, Jr., Labor Agent, American Woolen Co.
C. F. Bankhart, Harding, Whitman & Co.
H. O. Barnes, "Textile Manufacturers Journal."
R. S. Bartlett, Assistant Sales Secretary, American Woolen Co.
S. Bartlett, Slater Woolen Co., Webster, Mass.
Wm. Batchelder, Goodall Worsted Co.
G. W. Benedict, Boston.
Ernest Braithwaite, Harding, Whitman & Co., Boston.
Harry W. Butterworth, H. W. Butterworth & Sons Co.
E. B. Carleton, E. B. Carleton & Co., Boston.
Horace A. Carter, Treasurer, Wm. Carter Co., Highlandville, Mass.
F. H. Carpenter, Agent, Weybosset Mills, American Woolen Co.
C. H. Clark, "Textile Manufacturers Journal."

Sumner Clement, Soule & Co., Boston.
T. J. Clexton, A. Klipstein & Co.
E. P. Collier, Mauger & Avery, Boston.
Frank B. Comins, Treasurer, American Moistening Co.
E. H. Dorr, Secretary, Standish Worsted Co., Plymouth, Mass.
Edward Dowse, Manchester, N. H.
E. S. Dunn, Secretary and Treasurer, Dunn Worsted Mills, Woonsocket, R. I.

WILLIAM WHITMAN, REELECTED PRESIDENT OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS.

W. R. Cordingley, Treasurer, Woonsocket (R. I.) Worsted Mills.
Thomas F. Crowe, Agent, Baltic Mills, American Woolen Co.
Daniel J. Danker, Danker & Marston, Boston.
Fred R. Dawson, Superintendent, Saxonville (Mass.) Mill.
Philip A. Davis, Thomas H. Ball, Boston.
Edwin M. Dodd, Hobbs, Taft & Co.
Frank Eastwood, Superintendent, New England Co., Rockville, Conn.
A. H. Eddy, Agent, Saranac Mills, American Woolen Co.
L. Eisemann, Eisemann Bros., Boston.
Wm. Firth, William Firth & Co.
L. H. Fitch, Sales Agent, Moore Spinning Co.
F. W. Freeman, General Manager, Ætna Mills, Watertown, Mass.

E. A. Gordon, American Woolen Co.
Louis B. Goodall, Treasurer, Goodall Worsted Co., Sanford, Me.
W. A. Guile, President and Treasurer, Earnscliffe Worsted Mills, Providence, R. I.
W. A. Guile, Jr., Earnscliffe Worsted Mills, N. Y.
George B. Hammond, New England Co., Rockville, Conn.
A. Park Hammond, New England Co., Rockville, Conn.
C. L. Harding, Harding, Whitman & Co., Boston.
Harry Hartley, H. Hartley & Co., Boston.
Wm. D. Hartshorne, Agent, Arlington Mills, Lawrence, Mass.
E. L. Heath, Sales Secretary, American Woolen Co., Boston.
Franklin W. Hobbs, Treasurer, Arlington Mills, Boston.
Francis H. Holmes, New York.
Prentiss Howard, Agent, Chase Mills, American Woolen Co., Webster, Mass.
O. L. Humphrey, Harding, Whitman & Co., Boston.
E. N. Hunt, Treasurer, Roxbury Carpet Co., Boston.
Edwin J. Hylan, Treasurer, Musketaquid Mills, Lowell, Mass.
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H. Bradford Lewis, E. Frank Lewis, Lawrence, Mass.
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Geo. P. Levey, Black River Woolen Co., Ludlow, Vt.
Jas. W. Lister, Centredale (R. I.) Worsted Mills.
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Wm. Price, Arlington Mills, Lawrence, Mass.
Charles A. R. Ray, President, Norfolk Woolen Co., Franklin, Mass.
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Bradley M. Rockwood, Treasurer, Norfolk Woolen Co., Franklin, Mass.
H. W. Reed, Badische Co., Boston.
R. J. Salter, Salter Bros. & Co., Boston.
C. B. Smith, Star Worsted Co., Fitchburg, Mass.
George W. Smith, Agent, Valley Mills, American Woolen Co., Providence, R. I.
Robert H. Stevenson, Jr., Farnsworth, Thayer & Stevenson, Boston.
O. L. Suenderhauf, Agent, Beaver Brook Mills, American Woolen Co., Collinsville, Mass.
A. W. Sulloway, Sulloway Mills, Franklin Falls, N. H.
F. Swindells, Rock Manufacturing Co., Rockville, Conn.
Joseph F. Talbot, Superintendent, Talbot Mills, No. Billerica, Mass.
Fred G. Thomas, Agent, Bay State Mills, American Woolen Co., Lowell, Mass.
E. W. Tinkham, Treasurer, Wm. Tinkham Co., Harrisville, R. I.
W. W. Weeden, Agent, Manton Mills, American Woolen Co., Manton, R. I.
Malcolm D. Whitman, Harding, Whitman & Co., Boston.
Edwin Wilcock, Boston.
Otis P. Wood, Agent, Puritan Mills, American Woolen Co., Plymouth, Mass.
John T. Mercer, Arlington Mills, Lawrence, Mass.
Wm. B. Gardner, Superintendent "Top Mill," Arlington Mills, Lawrence, Mass.
W. R. Reed, Mauger & Avery, Boston.
A. B. Greenough, Patterson & Greenough, Waterloo (N. Y.) Woolen Manufacturing Co.
Joseph R. Grundy, W. H. Grundy & Co., Philadelphia, Pa.
Wm. V. Leech, Frank C. Morse, H. A. Phinney, Ferdinand Strauss, Wm. F. Tait, Augustus P. Thompson, George H. Waterman, and others.

The luncheon over, President Whitman addressed to the guests a few words of welcome. In the course of his impromptu remarks, he spoke in part as follows:

It is with unusual pleasure that I welcome the friends and guests of the Association to this, our first outing. Because of the social character of the occasion and also because of the lack of time the speaking will be short and entirely informal. Heretofore when I have addressed the Association at our regular annual meetings my remarks have been carefully prepared, but for this occasion I have not prepared anything. I could talk, however, for hours of this beautiful coast, unsurpassed in this or any other country. Some years ago as a member of the Commercial Club of Boston I came here when we entertained similar bodies

from Cincinnati and St. Louis, and with the recollection of that delightful occasion fresh in my mind, when it was suggested that this meeting should take the form of an outing I immediately thought of this place, Marblehead Neck, as the most suitable.

Under existing conditions, I am glad to see so many are willing to give a day to recreation. All business men need recreation, and I am sure that such occasions must bring them near together and that the cordial social relations engendered must stimulate more harmonious business relations.

The old adage is that "competition is the life of trade." Competition may be that under certain conditions, but there is a kind of competition that is ruinous, and in which none of us should engage. Fair competition in business is all right and can never endanger those friendly relations which should always exist among business men.

Mr. Whitman expressed confidence in the future of this country, saying that there is no limit to the power and capacity of the American people. The man who builds on the future is always the successful man. He referred to the threatened assault upon the tariff and expressed the opinion that no legislation inimical to this country's industries can pass the Congress. In concluding his remarks President Whitman stated that Marblehead Neck having no mayor he would call upon one of the oldest summer residents to welcome the Association to the town, and introduced the Hon. Carroll D. Wright, President of Clark College, who said:

Mr. President and Gentlemen: As one of the old summer residents of Marblehead Neck, it gives me great pleasure to welcome you to what the president has fitly called this historic place. It is historic. During the early period of the Revolutionary War British troops were camped where we now are. Marbleheaders were among the first to engage in that contest and they harried the enemy encamped here. They were engaged in the French War prior to the Revolution, and across the harbor Fort Sewall was erected. Tradition has it, and I believe the tradition has been verified, that the majority of the crew which rowed Washington across the Delaware were Marblehead men. The first recruits for the War of 1812 came from here, and so in the Civil War and the late war with Spain, Marblehead men were among the very first to respond to the call for troops. It is indeed historic ground.

Again, the residents of the neck constitute an industrial community, for here are men representing many phases of business life: manufacturers, merchants, bankers, and professional men. You are at home among them. I welcome you because I have been interested in your Association. I do not recall how long ago, you and I, Mr. President, cooperated in some of the important work in which you are engaged.

The president has referred to the proposed revision of the tariff. Do not fear it. I remember well when the Wilson bill was being constructed, a member of Congress, your friend but not a member of this Association, was on the Committee on Ways and Means. I knew him well, and as I had just made an investigation relative to the cost of producing textiles in this and other countries, he came to me, as the woolen schedules were committed to him. We worked together nights and Sundays. Sometimes when we came to an article on which I had made report he would say, "What duty will this article stand?" and when I would quote comparative costs and say that such a rate would be safe, he would invariably answer, "I think that a little too low, we will leave it as it stands." He was a good Democrat, but he did not wish to see the industry, in which he was engaged, injured in the least. And you remember the great free trade speech of Senator Pugh of Alabama. He advocated free trade in everything till he came near the close of his speech to iron, an industry that was being developed in his State, and then he said, "But iron, Mr. President, is an exception; its development demands a duty. It would be wrong to admit it free." About that time, or a little before, some rice growers from South Carolina came to my office to obtain some facts as to the rice industry. They were urging a very high rate on rice. I said, "I thought you were free-traders." "We are," was the answer, "but free trade in rice would ruin our industry."

So it is all along the line. Mere experiences teach me that both parties, acting together, cannot so revise the tariff as to injure any great industry. You are right, Mr. President, no party would dare to ruin or even injure one of them. Some injustices and incongruities need attention, but the great interests of the country will be preserved and fostered. When sociological conditions throughout competing countries are more nearly equal there may be some radical reductions, but not till then.

Under all these considerations I bid you a hearty welcome and a hearty God-speed in your work and interests.

After Colonel Wright had concluded, the well-known secretary of the Home Market Club, Col. Albert Clarke, was introduced, and spoke as follows:

After a few pleasantries Colonel Clarke, having referred to the toy lamb which in one course was served, said he wished to pay his respects to Mary's little lamb. When Consul William Jarvis brought the first merinos to this country in 1810 the number of fibers of wool to the square inch was 40,000. Under the careful nurture and skilled culture which they have received here, the number of fibers to the square inch has been increased to 222,000. This illustrates the importance of being in good company. A policy which has thus improved the sheep justifies the policy of protecting wool. Nothing can be of greater importance to the wool manufacturer than a large and dependable supply of domestic wool. Fortunately, under the able management which has for many years characterized the National Association of Wool Manufacturers, just and equitable understandings with the wool growers have been reached, so that both

MEETING OF THE NATIONAL ASSOCIATION OF WOOL MANUFACTURERS AT MARBLEHEAD NECK, MASS.

interests and the interests of the consumer (always a large concern of Congress) have been fairly guarded by the tariffs that have been enacted by the party of protection, and he believed such will be the case in the coming revision. He congratulated the Association on having at its head one so skilled in tariff matters and in the technicalities of the manufacture as President Whitman, and he was glad to hear the optimistic expressions of Mr. Whitman in regard to the coming revision. The tariff ought to be revised upon the basis of the facts which will be found by the committees of Congress. Those facts will show that both wool and woolens have made such progress as to justify their continued protection. There has been a great deal of loose tariff talk, but he rejoiced that the time has now come when everything has got to be subjected to the test of facts, and if Congress legislates accordingly it will not be long before all the mill wheels will be again turning.

On the conclusion of Colonel Clarke's remarks, Mr. John Hopewell secured the floor and proposed a hearty vote of thanks to President Whitman, the host of the day, whose liberality had made possible the outing and its attendant pleasures. This was passed with a unanimity that showed how sincere was the appreciation of the president's hospitality.

The meeting was then declared adjourned; and after lingering on the spacious verandas of the club house, for a short time, the party re-embarked on the General Lincoln and started for Boston at 4 o'clock, reaching the city two hours later, enthusiastic over the occasion and regretful that the festivities of the day were ended.

THE CANADIAN WOOLEN INDUSTRY.

That the preferential tariff is killing off the woolen industry in this country (Canada) is only too painfully apparent to all who have taken the trouble to compare what it was before the adoption of that tariff with what it is now. In 1900 there were 157 establishments in Canada employing five hands or more. These were capitalized at $10,486,198 and employed 6,795 hands turning out products to the value of $7,359,541. Five years later, in 1905, the number of establishments had been reduced to 103, the capital to $6,808,233, the employes to 4,587, and the value of the product to $5,717,735.

When this falling off in the woolen industry is compared with the rapid increase in the population of the country, amounting to 35 per cent. in the twelve years from 1896 to 1908, it becomes more impressive. If an industry that stands still in a growing country like Canada is considered to be going behind, what, then, is to be said of an industry that goes behind at about the same rate as the country goes ahead? It is certainly dying out.

As to the cause, we have only to look at the record of woolen imports to discover that the preferential tariff is the blight that is killing off our woolen industry. The value of woolen manufactures imported into Canada in 1897 was $7,094,909, and ten years later, in 1908, they had increased to $21,213,234, an increase of $14,118,325, or 199 per cent. To illustrate further the effect of the preference, compare the prices of wool and of the finished product both before and after the preferential tariff went into effect. In 1898 English blankets made from wool costing 14 3/10 cents per pound sold in Canada for 35 3/8 cents per pound, and in 1907, under the preferential tariff, English blankets made from wool costing 23 1/2 cents per pound sold in Canada at 30 1/8 cents per pound. These figures do not call for any comment. They tell too plainly the story of why the woolen industry of Canada does not prosper as it should prosper under fair conditions.—Industrial Canada.

There are in the United States 1,732 cotton manufacturing establishments of which North Carolina has 251, Massachusetts 210, South Carolina 141, Georgia 138, Pennsylvania 124, and New York 112.

The number of spindles in the United States has increased six millions since 1900; it is estimated that the number of spindles in Great Britain has increased eight millions in the last three years.

The imports of merchandise into India during the calendar year 1906 amounted to $360,000,585, of which $100,806,868 was for cotton piece goods and $11,226,725 for cotton yarn.

During the fiscal year ending June 30, 1906, the imports of cotton manufactures into the United States amounted to 63 million dollars, more than one-half of which consisted of laces and embroideries.

CORRESPONDENCE AND NOTES

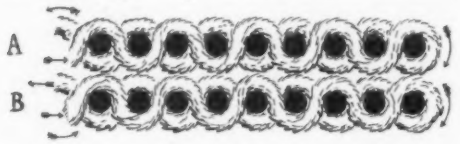
Upon Textile Topics At Home and Abroad.

DESIGNING AND WEAVING DOUBLE PLAIN CLOTHS.

BY A. R. FOSTER.

(Continued from July.)

If the marks in Fig. 7 are added to the marks of G in Fig. 5, the complete design for two unbound cloths is obtained, and the result is given in the upper portion of Fig. 8. In the lower portion of this same illustration are cross sections taken across the warp and showing the two sets of pickings necessary. Taking the first face pick, 1, it will be seen that the only warp threads which are above



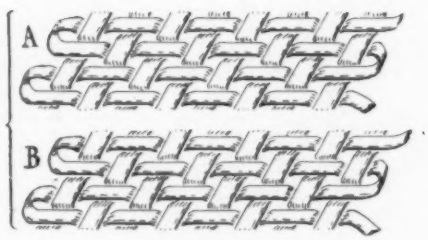
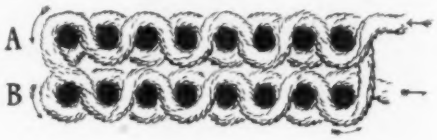


FIG. 10.

it are F2 and F4, which are given marked as lifts on the corresponding pick in the design above. The first back pick, 2, comes next on the design paper and in this case there are not only the back warp threads, B2 and B4, lifting over it, but also all the face warp threads, F1, 2, 3 and 4. These latter, as in Fig. 7, are marked by crosses on this second pick while the lifts of the back warp are shown by circles. The comparison between the next pair of picks, as shown on the design and in the cross section, can be made in the same manner, while the complete design, with all squares marked alike, is given in Fig. 9.

BINDINGS.

Up to this point the result has not been a true double cloth, but two plain cloths, one woven immediately over the other. The two fabrics may either be connected at the selvages or not, according to the shuttling, but between the selvages they are quite separate. To obtain two entirely distinct cloths, two shuttles are necessary, although they may both be weaving exactly the same kind of



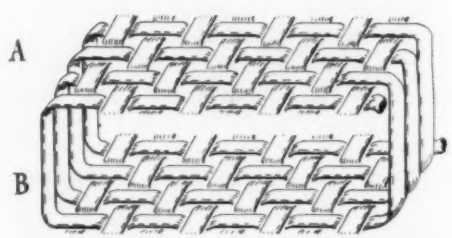


FIG. 11.

filling, for it is obvious that if the same shuttle passed through both cloths there must be a connection in the filling where it passes from one cloth to the other. In Fig. 10 a plain cloth is shown where there are two shuttles, each weaving two picks in turn. The first shuttle weaves into the face cloth, A, and then comes back through the same, then remaining stationary while the other shuttle passes across and back through the lower cloth, B. A similar result can be obtained—still with two shuttles—by using a

loom with boxes at each end and picking alternate picks with one shuttle and the intermediate picks with the other, but in any case, by this system two separate cloths are obtained which each have perfect selvages at both sides.

In Fig. 11 only one shuttle is used which passes backwards and forwards, laying a pick in each cloth in turn. The result is two cloths which are joined at the selvages, or

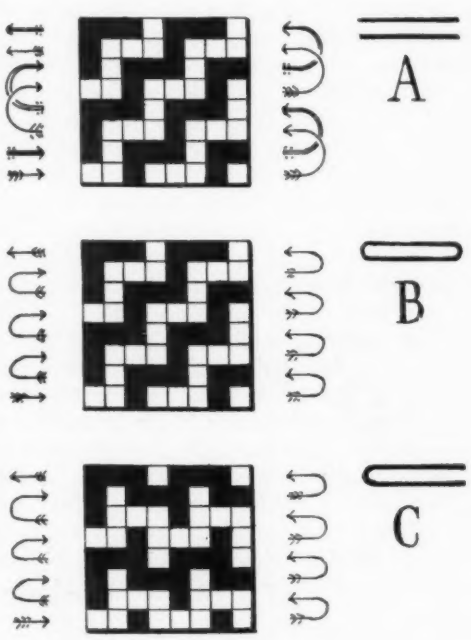


FIG. 12.

really one cloth in the form of a flattened tube. It is in this manner that seamless bags, piece-board covers, and like articles are made, while in another weave hose pipes are manufactured in this way. A modification of Fig. 11 can be obtained by putting two picks in the face cloth, A, and then two picks in the back cloth, B, instead of the shuttle changing cloths every pick. This shuttling connects the two cloths at one of the selvages only, so that when they are taken from the loom they give a single cloth, double the width of the cloth in the loom.

The writer once put this method of weaving to good use, for a heavily milled plain cloth which had always been ordered in narrow width was suddenly demanded in full width. To obtain the 56-inch finished width necessary a loom with 108-inch reed space would have been required while nothing wider than 84-inch reed space was available. The difficulty was overcome by weaving the cloth double, but connected at one selvage. Although the heavy milling would have obliterated any ordinary reed marks at the bend of the cloth, there was nothing in the grey cloth to show that it had been woven in any but the ordinary way. In Fig. 12 designs are given of the three methods of weaving unstitched double plains, A being for two separate cloths as in Fig. 10; B, for two plain cloths connected at the selvages as in Fig. 11; C, for a double plain connected at one selvage only and determinable into a single

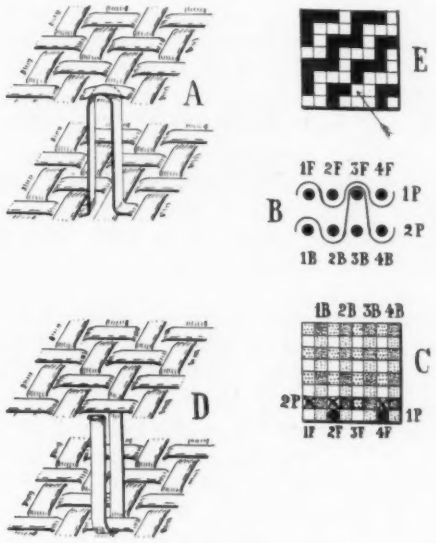


FIG. 13.

plain cloth double the loom width. In this last design it will be seen that the lift has been rearranged so that instead of a face pick and a back pick being thrown alternately, there are two picks face and two picks back throughout.

In the making of real double plain cloths, however, it is necessary to knit the two fabrics together so that to all intents and purposes they are one firm cloth. There are two ways of doing this, as illustrated by single

threads in Figs. 13 and 14, while as a third method the two may be combined. There is also another way which, however, is not true stitching, for the two cloths are made to change places or intersect each other at frequent intervals, so that their individuality is lost. This method is often extremely useful for figuring or coloring purposes, but cannot be employed when the back cloth is a different quality from the face.

In Fig. 13—which is an exaggerated diagram, as are most of those used, for the sake of better explanation—the binding is represented in two manners, although in the cloth the result is exactly the same. In the upper diagram, A, the first pick of the upper cloth not only interlaces with its own warp threads, but also passes down to the lower cloth and under the second warp thread of that cloth. What amounts to exactly the same thing is shown at D, where the second warp thread of the back cloth interlaces with its own filling in the usual way and also passes up to the face cloth and over the first filling pick of that cloth. Another way of showing the same stitch is given at B, which is a cross section, filling ways, of the dual cloth.

In recording this stitch on the point paper design, the usual markings are first filled in as described with Fig. 8. It will then be seen that an addition must be made, for there is an extra warp lift where the second back warp thread passes over the face filling. This is shown in C, where the square marked in full black denotes this stitching thread, as can be seen by comparing the numbering of the threads in B and C. As this is given for the sake of illustration only, only one binding is given at C, and the same refers to the design, E, where the weave is given on 8 ends and 8 picks. As the double plain repeats twice each way in this design the binding as shown by the arrow can be compared with the same place in one of the other repeats.

(To be continued.)

The total value of the exports from Cuba to the United States in the twelve months ending June, 1907, was $97,441,690. The total value of the imports from the United States in the same period was $48,330,913.

VARIATION IN SIZE OF YARN.

Editor Textile World Record:

Please advise me what variation from correct weight should be allowed from day to day on undyed ring spun hosiery yarns, say No. 10.

Bradford (992).

992: In order to get a satisfactory reply to this quesion the writer has been weighing and breaking yarns for 20 days. We have in our mill yarns from 3s to 95s, but the yarn I have been watching has been 21s warp. I have found that the yarn has varied only half a number. I do not know why the correspondent should say "undyed" yarn unless he wishes to know what count he should spin to have the yarn come out a 10s yarn after it has been dyed. If this is the reason, he should spin as near to a 9 1/2 yarn as possible and then he will find that he will have a variation of about half a number. A great deal depends on how well the roving has been prepared for the yarn. Good, even carding, drawing and slubbing will go a great ways in getting a good even yarn. The condition of the roving from day to day will make a great variation in the yarn. It makes no difference whether the yarn is dyed or undyed, the variation will be the same, that is, about half a number. One day it might be 10.25, another day 9.75 or even 9.50. If single roving is used there will be a greater variation than with the double roving.

Among the many causes for variation in yarn are long and short staple cotton, poor mixing, bad carding, uneven drawing, etc., all of which make it very difficult for the spinner to spin a yarn that will be 10s, 20s or 30s all the time. Gamaliel Gaunt.

During 1907 Antung, Manchuria, exported over 10,666,667 pounds or 26,000 baskets of cocoons. Of these, more than 23,000 baskets were destined for China and the balance for Japan.

The exports of merchandise from the United States for the eleven months ending May, 1908, aggregated in value $1,745,190,911, the largest in value in the history of the nation.

A SMOOTHING DEVICE FOR CLOTH BEAMS.

A device for winding cloth smoothly on the cloth beam of the loom, especially designed for silk looms, has recently been patented. The inventor states that the device is based on the fact that the wrinkling of the goods on the cloth beam is due largely to the bellying which occurs in the goods because the structure of the selvage is different from that of its body; the tendency is for the selvages to work toward each other as the goods is wound on the beam, producing more or less wrinkling or "cockling."

This device consists in the combination, with the cloth-beam, of a bar which is suspended in the angle between the cloth and the cloth-beam and has the portion which is in contact with the cloth, of convex formation so as to take care of the belly in the cloth and cause the cloth to be laid smooth on the beam.

Fig. 1 shows a section of a loom with the device in place; Fig. 2 is an end view of the cloth beam; Fig. 3 is a view of the bar looking from the rear of the loom; Fig. 4 is an underneath view of the bar; and Figs. 5, 6 and 7 are sectional views on the lines x—x, y—y and z—z, respectively.

A spreader, a, forms a part of the frame and is arranged above and parallel with the cloth-beam.

The bar, h, causes the cloth to be laid properly on the cloth beam. This bar is preferably, though not necessarily, constructed of wood; viewing it from the front or rear, it gradually heightens toward the middle of the bar, so that the bar is convex along its top portion. Similarly, viewing the bar from above or beneath, its face (which is the face thereof against which the cloth bears) presents a convex profile whose highest part is at a point midway of the bar. The under side of the bar, and the face, which bears against the cloth beam, are both straight or flat. The bar is slightly thinner at the top than at the bottom, this being due to a slight bevel on the face and which is indicated in all the sectional views and by the dotted line in Fig. 4. At its ends the bar is formed with the enlargements, which have approximately the thickness of the bar at the point, j.

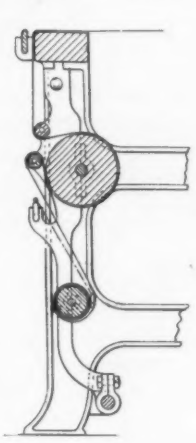


FIG. 1.

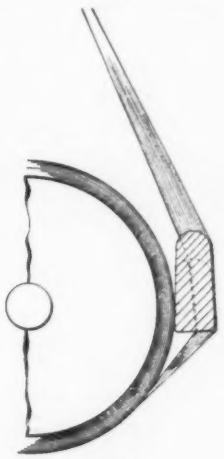


FIG. 2.

The bar is arranged with relation to the cloth and the cloth beam substantially as follows: It is placed in the angle between the cloth and the cloth beam with its straight side down and its flat side against the cloth beam; the suspending part is then so adjusted that the bar will stand substantially in the same plane as the axis of the cloth beam under the combined frictional action of the cloth and cloth beam, which tend to carry it around as the beam rotates. The bulge or belly in the bar, formed where the convexity of the face and of the top meet in substantially an edge, adapts itself to the belly in the goods and causes the goods to be kept flat or smooth until it has been laid or wound on the beam.

FIG. 3.

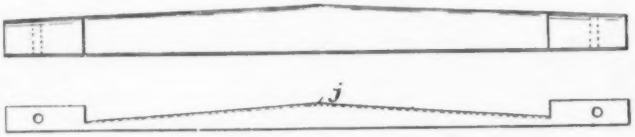


FIG. 4.

FIG. 7.

FIG. 5.

FIG. 6.

Date Apr 20, 1906 — STANDARD MILLS, BOSTON, MASS. — Our Order No. 601 T20H

Sold by Boyer — Cust. Order No. 24789

Ship to Consolidated Tire Co. Pittsburg, Pa. — Charge to Same

Via Penn. R.R. Fast Freight — Delivery Complete in 90 days

Quantity	Unit	Description	Terms
20,000	Yds.	T20H Sea Island Tire Fabric	54¢ per yd. F.O.B. our works 2% 10 days

June 30		Total Shipped 16000	Cancled 4000			Total Shipped	Cancled			Total Shipped	Cancled

B5a.

Deliveries

Date	Shipped Daily	Shipped Total	Canc'd	Date	Shipped Daily	Shipped Total	Canc'd	Date	Shipped Daily	Shipped Total	Canc'd
1906 May 15	5000	5000									
" 30	5000	10000	1000								
June 15	3000	13000	2000								
" 18			1000								
" 30	3000	16000									
				Fold inward along this line							
June 30		Total Shipped 16000	Cancelled 4000			Total Shipped	Cancelled			Total Shipped	Cancelled

B5a (INSIDE).

COTTON MILL ORGANIZATION.

BY ACCOUNTANT.

(Continued from April.)

Customers' orders are turned over to an order clerk who mails a postal acknowledgment of receipt and then enters the order on a regular printed form. There are two forms used, B5a and B56; these are very nearly the same. These forms are collated and put up in pads of 50 sets, first one of B5a, then two of B56, and last, another of B5a. B56 is printed on a light paper and cut 5 by 8 inches in size. B5a is on a heavier paper and is cut 9 1/2 inches long by 8 inches wide, printing on both sides, and is to be folded inward 4 1/2 inches from the top. Carbon paper is used for making copies and on one copy each of these the prices, terms, etc., are not entered.

Date Apr. 20, 1906 — STANDARD MILLS, BOSTON, MASS — Our Order No. 601 T20 H

Sold by Boyce — Cust. Order No 24789

Ship to Consolidated Tire Co, Pittsbury, Pa — Charge to Same

Via Penn. R.R. Fast Freight — Delivery Complete in 90 days

Quantity	Unit	Description	Terms
20,000	Yds	T20 H Sea Island Tire Fabric	

B56.

After the order clerk has completed the entry of the order, Form B5a with prices is filed in a card index drawer for unfilled orders under the name of the customer.

Stock Record — Product: T20 H Sea Island Tire Fabric — Unit Yard — Symbol T20 H

Orders					Production				Shipments			
Date	No.	Quantity Rec'd	Cancld	Total	Daily	Orders	Quantity Daily	Total	Daily	Orders	Quantity Daily	Total
4/20/06	601	20000		20000	4/10/06	On	Hand	6000	4/16/06	547	320	320
					4/15	601	500	6500	4/17	547	180	500
					4/16	601	800	7300				
					4/17	601	1000	8300				

B6.

Form B56 with prices is filed in a similar drawer for unfilled orders, seriatim. The other copy of B5a is sent to the shipping department where it is filed in numerical order while remaining copy of B56 is forwarded to the office of the factory superintendent. B5a is arranged for the recording of shipments and cancellations on the inside and this is done on both the shipper's copy and office copy.

The receipt of an order in the office of the superintendent means an immediate recourse to the records of stock on hand in order to learn whether goods can be shipped from stock or if it will be necessary to issue a manufacturing order for their production. The record of finished stock or product on hand is kept on Form B6, the product being symbolized and symbols being page numbers in stock books. On this form is entered as received the orders and cancellations, production as shown on time reports, and shipments as shown on shipping reports. An inspection of this record then gives us the daily and total quantities ordered, quantity produced, quantity still necessary to produce to fill orders, quantity shipped, quantity necessary to ship to fill orders and the quantity finished and on hand.

Stock Record — Worked Material: Warp- For T20H; Unit Yard — Symbol: T20H W

Received						Issued					
Date	Quantity		Date	Quantity		Date	Quantity		Date	Quantity	
	Daily	Total		Daily	Total		Daily	Total		Daily	Total
3/31/06	300	300				3/31/06	300	300			
4/2	820	1120				4/3	820	1120			
4/3	760	1880				4/4	440	1560			
4/4	640	2520									
4/5	930	3450									
4/6	790	4240									

B7.

Cloth _____ Symbol _____
Width _____ Wt. Sq. Yd. _____ Weave _____
Warp _____ 1st Twist _____ 2nd Twist _____ Strength of one thread _____
No. of ends _____ per inch _____ Strength in inch cloth _____
Reed width _____ Dents per inch _____ Thds per dent _____ per dye _____
No. section beams _____ ends in each _____
Filling _____ 1st Twist _____ 2nd Twist _____ Strength of one thread _____
Picks per inch _____ Strength of inch Cloth _____
Teeth in ratchet _____ take up _____ change gear _____

Yarn	Warp	Filling	Cloth
Per sq. yd. is			
Crimp percent in			
Cloth percent of			

B8.

If the stock records show that it will be necessary to manufacture goods, the production clerk turns to his files and learns from the record kept on Form B8, the construction of the fabric, information which he must have before issuing any order for production. After roughly drawing off the quantities of raw material necessary to put in process to produce the fabric desired he turns to the record of stock on Form B7 to learn if he has on hand any worked material which can be used on the order.

This form has only to do with the production of cotton on tubes, reels, spools, warps, etc., as reported on time reports, kept in store rooms, and issued therefrom on requisition by department foremen.

(To be continued.)

The exports of wool from Australia for the nine months ending March 31, 1907, amounted to 215,000 bales.

UNEVEN YARN.

BY SAM DRIVER.

Twitty, uneven and poor yarns are not all made in the card room. I will mention several ways whereby uneven and poor yarns are made after the roping leaves the card room. No matter how good the roping from the card room is, it can be spoiled afterwards. We will first take the spinning room.

The day has gone by when a botch mule fixer can be tinkering all day trying to get a spinning mule to run. Mule fixing has become a science. A first-class mule fixer must be a mechanic. Mill owners cannot afford to hire a man who has to experiment all day before he gets the machine to run. The best men work by rule and don't have to experiment to find out where the trouble lies, and the men who have made mule fixing a specialty can command fair salaries. There are several causes for making twits on mules. One is having the speed of the roping spools less than that of the draft rolls. This is easily tested by slacking up the roping on one spool. If the rollers draw the slack up they are drawing too tight and will cause twitty and tender yarn. The remedy is to cause the roping drums to pay out the roping as fast as the draft rolls need it.

Another cause is the improper setting of the quadrant. Another is the wrong adjustment of the scroll ropes. Thousands of pounds of yarn are rendered unfit for first-class goods simply because the scroll ropes are not properly adjusted. The yarn and everything else may have the appearance of being perfect and spinning well, but if these ropes are wrong the yarn will be far from perfect. The scroll ropes should be set so that the strain on the roping will be uniform from the time the carriage begins to leave the draft rolls until it gets to the end. The speed of the carriage can be changed to suit all kinds of yarn, and it is up to the fixer to handle the different parts properly. Stand at the end of the mule and look along the roping as the carriage draws out. If the strands sag down the carriage is not drawing fast enough. The top scroll rope should be let out a few teeth and the bottom rope taken up as many teeth as the top is let out. If the roping is seen to be very tight when the carriage is drawing out, it is an indication the carriage is being drawn too fast. The remedy is simple enough as all that is needed is to let out the lower scroll rope and tighten up the top one until the carriage is satisfactory. Many of the defective places in yarn are the result of improper setting of the scroll ropes. If the carriage backs off too slow the surplus draft is likely to make spindle points. The ropes can and should be varied more or less for different kinds of stock. For short stock the lower rope would be let out and the top rope taken up so as to give more time for the twist to go in. For long stock the reverse would be done to get the draft in as soon as possible.

Sometimes spinners get careless in piecing up the yarn while the mule is in operation. This causes many defects which appear when the cloth is uneven. Among these are soft and lumpy yarn, and bobbins split by defective packing. If the packing on the spindle is not right the spindle will not turn the bobbin as it should. Frequently the friction hold will be lost. If this happens when the carriage is backing off, there will be a strain. Sometimes the strain on the roping occurs if the bobbin slips while the carriage is drawing out, which will cause a twit. If the bobbin stops during the drafting lumps in the yarn will be caused.

It is safe to say that at least one-quarter of the causes of uneven and tender yarn and tender goods originate in the spinning of the yarn. We often hear superintendents complain about the goods being weak and not up to the standard in regard to strength and evenness. One way to prevent tender goods is to have the yarn spun properly. This can be done if the roping is good. Uneven spindle bands will not give the same twist. The soft yarn will weave closer, and show a lighter shade than the hard twisted yarn. The soft yarn will full quicker and the cloth will be cockled.

Warp yarns to be strong and even should be drawn tight, after the rollers have stopped. The movement of the carriage outward should be slower in proportion to the speed of the spindles than when the roll-

ers are running. This throws more twist in the yarn while it is being drawn and makes a more solid and compact thread. Usually the carriage can move outward all the way at a uniform speed.

ENGLISH NOTES.

(By Our Special Correspondent.)

Conditions in the cotton trade not mending perceptibly, notice of a reduction in wages becomes imminent. Under the terms of the agreement advances or reductions are limited to 5 per cent. and this amount will probably be asked for. Spinners of American cotton have dropped 117 1/2 hours since May and in addition to holidays 108 1/2 hours are to be cut out before September. In Germany, Belgium and Portugal federated spinners are all working short time with the intention of curtailing yarn production. In Lancashire shorter time than that agreed on has been run by various mills and the curtailment is certainly causing one reflex effect. Trade in necessaries is bad there and operatives have little money to spend. Many hands have taken their holidays, breaking permanently into the fund of their "going away" clubs. The export boom in coal having collapsed entirely, manufacturers are looking to have fuel much cheaper soon.

* * *

An artificial position of the wool market is maintained. London brokers and importers by carefully nursing the surplus and delicately adjusting the quantity put on sale, interfere with the natural course of the market. English farmers in some districts have been encouraged to hold wool by the good prices paid on American account for some sorts. Scotch farmers are in no hurry to accept for their carpet wools bids which are little better than half those of last year. This holding on, taken with quietness in the iron trades, is against recovery in the home demand for textiles. Albeit better than hitherto, sales of woolen fabrics leave much to be desired. Crops are heavy, money is cheap and numerous industrial establishments are raising fresh capital.

It is asked what books on the prevention of mill accidents are published in England. A Home Office report (Cd 3168 3s 9d Wyman, London) on safeguards for prevention in cotton mills is a standard. H. S. Richmond, its author, summarizes the state of the law and offers recommendations. The contents are principally drawings of approved devices. There is further a work, the Prevention of Factory Accidents, by John Calder, an ex-factory inspector, which is devoted chiefly to the fencing of machinery.

For general information be it said that English law requires the fencing of all hoists or cranes, flywheels or wheel races and "all dangerous parts" of machinery and mill gearing. Belts other than overhead ones are "gearing," as are the gear wheels of engine governor balls. Special regulations as to mules forbid the running of the traverse nearer than 18 inches from any fixed structure. Expert opinion favors the use of automatic locking covers on bale-breakers, feeders, openers, scutchers and the like and favors covers which can only be opened by first shifting the belt to the loose pulley. Set screws projecting from shafts or couplings and toothed wheels are looked on with disfavor. There are rules as to what projections on carding machines must be shielded, and as to shuttle guards for looms, in addition to those applying to all factories in general. English practice in preventing accidents is looked on as advanced, but a factory inspector remarks that it is one thing to provide guards and another to compel constant use of them. Inspectors think that in English mills there is plenty still to be done in the interests of personal safety.

* * *

A German pottery firm is establishing works in Kent in consequence of the new Patents law and its example must be added to that of the Gillette Razor, the Union Shoe Machinery Co. and the two great German dyemaking companies. A large number of other foreign patentees are considering sites. Estate agents have representatives out interviewing manufacturers abroad and one London firm has canvassed, by one or another means, 15,000 foreign owners of British pat-

ents. The German Bund der Industriellen, dismayed by a mistaken idea of the situation, petition for an extension of the time limit by a year, for retaliation upon England and for pacificatory negotiation. Official Germany has been salved with the assurance that the law does not unreservedly demand the manufacture of every patent in Great Britain.

Protectionists are only now finding out that the measure is not quite what they want. The foreign-held patent may be made abroad with impunity for the four first years of its existence. Perhaps it may be worked abroad for its full term if the Board of Trade can be convinced that English working would add to the cost of the commodity. These circumstances are obtaining appreciation abroad and they help to explain why there has not been the anticipated rush of 8,000 or 10,000 patent holders. Not every patentee will open works. Some are granting licenses to manufacture to British firms; engineers are advertising for work of that kind. The Act allows for some latitude in particular cases and Continentals who are considering sites are taking their own time. After August 28 appeals for the cancellation of unworked patents begin to be in order so that soon it should be seen how the measure works in practice. Demands are already being made for a more drastic Patents Act.

* * *

Dyers who have done well on this side have not always succeeded as well under American conditions. Some of them have been interested to read that someone wants "The Best Dyer in England for America," to take charge of piece dyeing in all delicate shades and of cotton and worsted yarns which will stand cross dyeing to fast colors while retaining the original shade. In the ordinary way a piece dyer is not also a yarn dyer, but it is not uncommon for the two to consult and for a slubbing man to advise on the best way to get a shade in pieces or for the piece dyer to recommend a recipe for yarn. That is so where the affair is one mainly of personal experience of dyestuffs. Foremen dyers specialize in blacks, in blues and in colors and in the large works they have the advantage of the experience of their staff of small lot and assistant dyers.

* * *

An aspect of the tariff problem which may trouble America some day is agitated currently in England. This concerns the value of particular processes to the people at large. It is a familiar contention that England exports yarn where she used to export cloth, combed wool where she used to send yarn and raw wool where once tops went. The statement is not devoid of justification and a manufacturer who views the symptoms with alarm goes into figures as to his own production. He pays $100,000 in wages a year and some 10 per cent. goes for scouring and combing, 18 per cent. for spinning, 63 per cent. for subsequent processes and 9 per cent. in other directions. The moral is that a nation is well advised to retain the whole process of production and in particular the weaving trade.

* * *

Use of the "big stick" by the great textile trade combines is not unknown. "Send us your dyeing or we start in to get your weaving" was the purport of an ultimatum delivered with effect to one mill. They cannot all afford to be dictatorial and one combine was urged by fretful stockholders into sending an emissary round the mills to see if manufacturers would consent to put all their dyeing into the hands of some one branch works. The almost universal answer was that work would be sent just when the manufacturer chose. We like a choice, we do not care to be driven and if a combine is too poor to send more than one representative to ask for business, orders are likely to go to the outside. Moreover practical men are not of the opinion that anything is lost by a healthy emulation to please even if that does involve some apparent overlapping of canvassers' efforts.

* * *

In occasional instances the resident Canadian Trade Commissioners in this country are deputed to inquire into cases of alleged dumping of fabrics by English houses. Manufacturers are then invited to explain the circumstances which make job and stock-lots

so cheap. The Commissioners are sent, too, to investigate the origin of goods when it is believed that Continental articles are being consigned as British to enter under the preferential tariff. One case inquired into concerned boot-laces woven in Germany which were called English because the metal tags were put on by a machine in London, along with the English labels. Little satisfaction was obtained. So intermixed are Anglo-Continental affairs that quite probably the yarn (mohair or polished cotton) woven into laces in Germany would prove to be of Yorkshire or Lancashire spinning. Warehousemen are the prime offenders against the law as to origin. French and German silks, Italian felt hats and Continental fancy goods of all sorts are declared to be British because they have been put into stock in London.

* * *

The French Ministry of Commerce and Industry at the Franco-British Exhibition has taken a large space to demonstrate the beauty of the metric system. The system is dedicated "A tous les temps, a tous les peuples." One exhibit is that cumbrous piece of lattice-work, a meter rule, ten-jointed. A circular, "All that need be known about the metric system," is given away. It illustrates nothing more than the utility of decimals and prudently evades the whole subject of the unhandiness of the meter unit, the impracticability of a change in countries with highly organized industries. Use of the meter makes no visible headway in England and it is significant that Kynoch & Co. who adopted the metric measures a year ago in their nine factories are now for the first time unable to pay a dividend. An unbroken record of 10 per cent. for 11 years has been destroyed simultaneously with the employment of the French system.

Fifty tons of Egyptian cotton seed were distributed over an area in the Bombay Province comprising 5,000 acres. The cost of cultivation was $2,066 and the proceeds from the sale of the cotton amounted to $1,866. The poor showing is attributed to the bollworm.

NEW COMMERCIAL FIBERS.

BY CHARLES RICHARDS DODGE.

With a twenty million dollar combination among the sisal hemp growers of Yucatan, it may be that in a not distant future some of the sisal hemp substitutes will be pushed into greater prominence. Several new fibers, that in recent times have become commercialized, are regarded as promising substitutes, and one, at least, already brings in the New York market very nearly the price of sisal hemp.

Maguay fiber, as a term, is as old as the hills in Mexico, where a score or more species of Agaves are known as "Maguays." But there is another Maguay, so called, which is beginning to be extensively cultivated in the Philippines, the exports of which have already reached upwards of two thousand pounds in a year. The species very closely resembles in appearance the sisal hemp plant, though its trunk is shorter. The leaves may be described as 4 to 6 feet in length, and 4 inches wide at the central portion. The fiber is somewhat different from sisal, however, as it is finer and whiter, and the plant yields a smaller percentage of fiber to the weight of the leaf. It is more wavy and fluffy than sisal, and in these characteristics it comes nearer to the true Maguay fiber of Mexico, the type of which is Agave Americana. The fiber of the century plant, however, is nearly white, very wavy and under tension showing extreme elasticity, this latter characteristic being against it for general cordage purposes.

The Philippine Maguay is known botanically as Agave Cantula. Its cultivation is rapidly extending throughout the archipelago. In Cagayan over 65 acres have been planted and six million plants are growing in one locality in Nasugbu. In other regions cultivation has passed the experimental stage, and wherever a thin, rocky soil exists, or a soil made up of decomposed coral rock, as in Yucatan, the successful growth of the plants may be assured, and no doubt if a price only one-half to three-quarters of a cent per pound lower than sisal hemp, in the New York market, can be obtained, the

plantations will be extended and exports increase. Three years ago the fiber was quoted in the London market, in comparison with sisal hemp on the same day, at $150 per ton for the former and $185 for the latter. It formerly came from the provinces of Ilcos Sur and Ilcos Norte only.

Another sisal hemp substitute that has lately come into notice is known in Mexico as Zapupe. The name seems to have been applied to the fiber of two or more species of Agaves, however, for the Zapupe of Eastern Mexico is not derived from the same plant as the Western species. Mr. Lyster H. Dewey informs me that the plant is being cultivated in the State of Tamaulipas, and it may be the same thing as an unidentified species that I examined in Eastern Mexico several years ago. It is said that considerable areas of the Zapupe Agave are under cultivation in the State of Vera Cruz, and that the plants will begin to yield fiber in the present year; and a commission of Yucatan hemp growers are already investigating this new source of hemp supply. The leaves are narrower and longer than those of the true sisal plant, and the fiber is finer, although quite strong.

The Western form is derived from a group of Agaves which flourish in the State of Jalisco, towards the Pacific, and which for many years has been the source of the liquor known as Tequila spirits—a fiery distillation from the roasted hearts of the plant which only a Mexican can drink. There are several forms of the plant, known locally as the "azul," the "mano largo," the "chato," etc.,

ZAPUPE FIBER PLANTS.

but the "azul" is at present the chief source of Zapupe fiber. The plant is known to science as Agave tequileana, an illustration of which appears on these pages from a photograph taken by the writer near the town of Tequila. Tracts of the plant are also growing, under cultivation, forty miles below the city of Guadalajara, but they were not visited by the writer.

Zapupe fiber is also a form of Maguay; it is softer and whiter than sisal, of less tenacity, and would not command a price even as high as the Philippine form. The Maguays of Mexico, as a rule, are very large plants, with broad fleshy leaves, which yield

only low percentages of fiber. The Zapupe plants, however, approach more nearly the form of the true sisal hemp plant, but without a trunk, the leaves being very straight and stiff, quite long, and not more than four or five inches wide at the center. These tracts of Zapupe Agaves are owned by wealthy distillers of Tequila who, while they live in town, maintain establishments at the haciendas. In our second illustration is shown the approach to one of these haciendas, the adobes at the right of the picture being a part of the garden wall, the house proper concealed by the trees which form the orchard of tropical fruits. We dined at this hacienda. The host, a handsome young fellow in typical Mexican costume —tight-fitting pantaloons, embroidered short jacket, and an immense sombrero—was a younger son. He did the honors graciously—the dinner was a 12-course affair of Mexican dishes—after which the party mounted the animals again and rode through acres upon acres of the plants. The fiber is a by-product, so to speak, for in securing the hearts of the plant, which yield the Tequila spirits, the leaves containing the fiber must be taken off. The fiber has been manufactured to some extent in Mexico, and a little of it has reached the United States.

Regarding the Yucatan sisal hemp industry, the present combination will doubtless enable the hacendados to hold a crop until it commands the prices at which they will be willing to sell. The era of high prices which prevailed with the shortage of Manila hemp after the Spanish war, was followed by a depression that the growers are now endeavoring to overcome. How far this will help the growers of sisal hemp in the Bahamas, in Hawaii, and on the east coast of Africa where the culture has recently been established, remains to be seen. It must help the Philippine growers of Maguay fiber, and as the cultivation of the plant is rapidly extending anyway, the fiber will be sure to come into our market in increasing quantities.

NATIVE HOUSES OF ADOBE BRICKS.

The art of calico printing was not known in Europe until the 17th century, when Augsburg became celebrated for its colored cottons.

A SADDLE FOR SPINNING FRAMES.

This improved saddle for spinning frames, recently patented, is described by the inventor as follows: The saddle is for the upper rolls of spinning frames for cotton, silk, etc., at the top, in which the main saddle is constructed with an oil conduit which receives its supply or is filled from behind the clearer-board and from which the oil is delivered to the bearing points through openings or passages leading from such conduit and opening over such points for the purpose of lubricating the bearing surfaces. There is also an auxiliary or bottom saddle, and means to lock the main saddle and blade together. Fig. 1 shows the new saddle and the spinning rolls; Fig. 2 is a rear view of the two saddles shown at Fig. 1; Fig. 3, a front elevation of the blade.

The objects of the new saddle are to produce a simple and durable saddle, which is adapted to receive and contain oil and to distribute the oil directly to the different bearing points in such a manner that they will be lubricated uniformly without waste; second, to afford convenient means for easily and quickly filling the conduit in the saddle with oil without removing the clearer-board; third, to avoid all danger of spilling oil on the rolls and so spoiling those which are covered with leather, the front rolls, on the one hand, and soiling or ruining the roving, on the other hand; fourth, to construct the lower saddle so that there shall be no escape of oil at the side; fifth, to provide means for locking together, as it were, the main saddle and the weighted blade which holds it down to its work, whereby neither one nor both is or are liable to get loose, as frequently happens with those now in common use, and, sixth, to furnish a self-closing cover at the entrance to the oil conduit so as to keep out dust and dirt. In spinning frames for fine thread where the speed is slow no lower or under saddle is employed.

The three rolls at Fig. 1 are represented with two saddles bearing on the journals to hold the latter down forcibly on the same number of bottom rolls, a weight suspended from a blade supported from the saddle affording the required amount of pressure. A clearer-board rests on the saddle. The saddle is provided with an upstanding extension or arm at the back end, rising behind the clearer-board when the parts are assembled, as they are assumed to be for the purposes of this description. The saddle is hollow, that is, it has a comparatively large passage or conduit which opens through the top of the arm and from which small openings or passages extend to open through the bottom of the horizontal part of the saddle

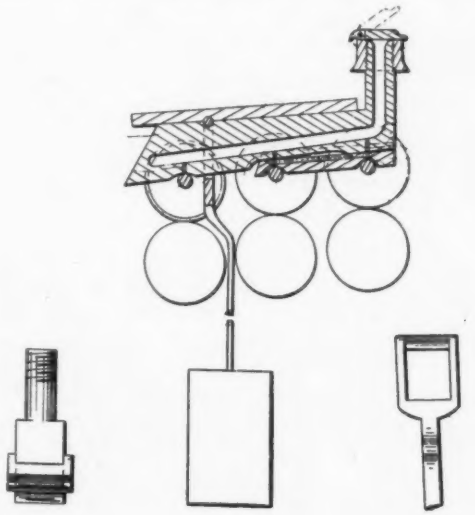


FIG. 2. FIG. 1. FIG. 3.

either directly onto the journals or into the saddle.

The upper surface of the saddle is dished to form a shallow receptacle or recess in the top below the middle and rear passages in the main saddle; this recess communicates with the two journals below by way of two small openings or passages, which open through the bottom of said saddle directly onto the journals. The recess is filled with a mass of wicking or other suitable absorbent material.

Of the total Swiss embroidery exports of $30,593,474 in 1906, the United States took $14,877,148, Great Britain coming next with $6,279,184, and the balance being distributed throughout the world.

Questions and Answers

Under this head we undertake to answer, free of charge, to the best of our ability, any pertinent inquiry pertaining to textile matters received from any regular subscriber to the TEXTILE WORLD RECORD. Questions should be stated as briefly and concisely as possible. Inquiries pertaining to textile processes, machinery, improvements, methods of management, the markets, etc., are especially invited, as well as any legitimate discussion on the views expressed. All inquiries must be accompanied by the name of the person inquiring ,not for publication, but as an evidence of good faith.

For reply to questions that are not of general interest to readers of textile journals, such as those relating to the composition of yarns, analysis of fabrics, etc., we will charge the enquirer with the cost of the investigation.

Analysis of Cloth.

Editor Textile World Record:

I was much interested in your "Talk on Textile Arithmetic" at the Lawrence Textile School, in which you explained a method of analyzing cloth. I made a test of your straight line method by analyzing a sample of the cloth made in our mill and with the construction of which I am familiar. The results of the analysis do not agree with the known construction. We spin our yarn to 36s; the size indicated by the analysis was 33. How do you account for the difference?

Stadium (1007).

1007: The "Talk on Textile Arithmetic" gave directions for determining the size of the yarn as it lies in the finished cloth, and without making allowance for any change of size resulting from a gain or loss in length or weight after the yarn was spun. The question of allowance was omitted at Lawrence to avoid making the talk too long and complicated. The difference between the spun size of the yarn and the results of "Stadium's" analysis of his own goods is probably due to take-up in weaving.

The changes in the size of yarn after spinning may be due to a gain in weight, as when the goods are sized; to a loss of weight, as when woolen goods shrink in weight in finishing; or to a shrinkage in the length of the yarn, as caused by take-up in weaving or by contraction of the filling after weaving. Seldom if ever is the yarn longer in the finished cloth than when spun, making it necessary to allow for an increase in the length.

The allowance for changes in yarn sizes after spinning are most conveniently, although not necessarily, made by decimal fractions, that is, percentage, and is illustrated by the following examples.

1. The size of the warp as it lies in a sample of cotton cloth is 18s. The take-up of the warp is estimated to have been 10 per cent. Find spun count.

The cloth length of the yarn is 90 per cent. of the original spun length. The 18 hanks per pound is 90 per cent. of the spun length per pound. Then:

18 (hanks) $\div$ 90 = 20s, spun count.

2. The size of the warp as it lies in a sample of woolen cloth is 5 runs. It is estimated that the goods have shrunk 20 per cent. in weight by finishing. Find spun count.

A pound of the spun yarn weighs .80 pound when finished, consequently the length of .80 pound finished is equal to the length of a pound of spun yarn. A pound of yarn as it lies in the finished cloth measures 5 runs. Then:

5 (runs) $\times$ .80 = 4 runs, spun count.

3. The size of the warp yarn as it lies in a sample of worsted cloth is 36s. It is estimated that the take-up has been 10 per cent., and that the goods have lost 20 per cent. in weight by finishing. Find spun count.

In this case we find problems 1 and 2 combined. Then as in 1:

36 (hanks) $\div$ .90 = 40s.

The spun count would have been 40s if the goods had not shrunk in weight. Allowance for this loss of weight is made as in 2:

40 (hanks) $\times$ .80 = 32s, spun count.

The order of these two operations makes no difference in the final result. Thus reversing the above order we have:

36 (hanks) $\times$ .80 = 28.8s.

28.8 (hanks) $\div$ .90 = 32s, spun count.

It is unnecessary to illustrate the method of making allowance for a gain in weight, as by sizing, because the size should be removed from the sample before the analysis is made.

The illustrations given above are all based on the fixed weight system of numbering yarn, that is, length per pound. The process is reversed when the sizes are indicated by the fixed length system, such as the grain count, or the dram system as used for silk.

Regarding Thrown Silk.

Editor Textile World Record:

We are manufacturers of silk ribbon and use thousands of pounds of silk. Which is the best way to buy silk, from the importers direct or from reliable throwsters and dyers?

Can you give us the average price of throwing and dyeing?

We would like your advice regarding the best way of buying silk, whether in the raw and having it put through the finishing process, or in the form of the finished organzine from the middleman? Denier (993).

A manufacturer when planning the construction of his fabrics will have well in mind the characteristics of the raw material he expects to use, and will arrange to get such a quality of stock as will weave well, and which will cause the goods to have the most desirable appearance, feeling, and other good qualities.

In order to be sure of what one is getting it is necessary to know all about the raw stock, its origin, grade, etc. (and there are as many differences in silk as there are in wool). When silks are bought already thrown, it is very hard to be certain about these points, for it is not at all to the thrown silk merchant's interest to tell all that he knows.

There is not in this country the large market that exists in Europe for spot thrown silks. Over there the most exact information is available about each lot. Here, however, the business of throwing silks and selling them to manufacturers, is done only in a limited way, and but few houses are engaged in the trade. Those who buy thrown silk, too, are mainly people unfamiliar with the trade, or those whose uses of silk are either small or of an intermittent character, or firms with very limited capital; or perhaps some large concern may need a special lot of silk for a hurry order and cannot wait to get it thrown. In the regular practice of large silk mills, the purchase of thrown silk is never contemplated except in an emergency. To buy in this way would simply waste money and invite uncertainty.

Among silks there are many varieties. The North China silks are brilliant, white, and nervy; those reeled in the steam filatures by European methods are second to none. The native reelings, called Tsatlees, while of excellent nature, are so irregular in size, or thickness, that they are entirely unfit for general use.

From South China come the Canton silks, not so white, and while lustrous, yet very hairy; this quality unfits them for use except for special purposes.

Japan produces a great quantity of silk, all that comes to this market being well reeled and easy to handle. The color is generally a creamy white, and the qualities range from the very finest downwards.

Italy produces a large quantity, not only from cocoons raised in the country, but also from cocoons sent there from the Levant, Syria, Broussia, Roumelia, etc. The Piedmont silk is second to none in the world, and silk of many qualities is raised throughout the peninsula. Sicily, too, is the home of many excellent qualities.

From France we have the well known Cevennes silks, rather softer and hairier than desirable for some purposes.

There is a limited quantity of good silk sent out of Hungary and it is generally very well reeled.

The Spanish silks, of which some find their way here, have a very good nature.

Bagdad and some other Eastern silks have frequently given trouble on account of their so-called "lousiness," which causes light specks to show up in the fabrics, though it must be said that investigations seem to show that the difficulty lies more in the manner of dyeing than in the nature of the silk.

There are a few other minor sources of regular silks.

Then there is a large production of wild silks, generally known as Tussahs, most of which comes to us from Manchuria and other parts of North China, and some from India.

There are a great many grades, as well as a great many varieties of silk produced. They start at the top and work downwards.

There are no fixed standards. The best cocoons of the season, reeled in the best possible manner, make a silk that is described as "extra classical"; the next grade will be "extra"; the next, "best No. 1"; then "No. 1"; No. 1 to 1 1/2; No. 1 1/2; No. 1 1/2 to 2, etc.

The cocoons vary in quality from year to year, so the extra classicals of one year may be no better than the extras of another year, with consequent variation of the other grades. In Japans the summer reelings are superior to the spring reelings. In Cantons (of which there are six, and sometimes seven, crops) the first three crops which are reeled during damp weather are inferior to the next three.

Slight local differences in altitude, water and other conditions will often made a wide difference in the merit of the silk produced, even from the same lot of silk worm eggs. Different provinces have their own peculiar varieties, and each reeling establishment will have its own style of management and conditions of work with a consequent reputation for good or bad work.

While distinct grades are recognized, the products of the many filatures are so varied that the qualities blend into one another without any sharp dividing line. Some marks, for instance, will be rated as strict No. 1; others not quite so good as good No. 1; then fair No. 1; then a quality that some may call No. 1, but others say should be rated as No. 1 1/2, and so on. Then the reputation of the different marks is constantly shifting. Better machinery, better methods, and better management will keep improving the quality of the output of a certain mill so that the grade that was only up to No. 1 two years since may be claimed properly to be a best No. 1 this year. Similarly, bad management may cause the rating of other marks to fall to a lower position.

There are other causes to consider also, but the foregoing statements will show what a complex and shifting situation one is confronted with.

Large buyers carefully study the merit of the season's crop, and of the particular grades they use. Some marks they hold in esteem and some they would not have at any price. For making the different classes of their product they purchase the most suitable natures of silk. An inexperienced buyer, knowing the goods he wants to produce, can get excellent guidance from some of the high class raw silk houses as to what he should buy, and with their advice will not be liable to get far astray. Buying from them, and having the silk thrown and dyed to his own order, he knows exactly what is going into his goods, and will have no trouble in duplicating them later on.

What chance, however, has a buyer of thrown silk to know what he is getting? Spring reels will be worth five or ten cents less than summer reels. Shinshiu silks are worth less than Kansais of the same grade, and all chops or marks sell up or down, according to reputation. It is commonly said that thrown silk houses are large purchasers of No. 1 and Best No. 1 raws, and are large sellers of extras, and extra classicals, thrown.

No doubt much may be done by thrown silk merchants in the way of buying good marks, but of not generally acknowledged merit, which may sell at a lower price than they should, sorting or grading the individual skeins carefully, cleaning the silk, that is, putting it through a process to rid it of lumps, slugs, fine places, etc., then throwing it very carefully, the result being that a satisfactory organzine may be made from a silk not usually considered good enough.

The thrown silk merchant who has had all this done may, therefore, feel, and perhaps be, justified in marking up the classification of his silk as referred to above.

As a matter of fact, however, it is very unlikely that anything more would be done in the preparation of the silk than any good throwster would do for the manufacturer. As the weaving of the warp in the loom depends largely on its nature and elasticity, it is of the first importance for a manufacturer to know exactly what he is getting for his raw materials, and the buyer of thrown silk is given little reliable information on this score.

The price that thrown silk is quoted at is the great bait that helps to sell it. Take the quotations of thrown silk at any time, and compare the prices. If good marks of extra classical Japans were $5.00 a pound, six

months' terms, we would take off 2 per cent. for four months' time to reduce it to the sixty day terms on which thrown silk is commonly sold, which would make it $4.90.

The waste which should be made in throwing such a silk into organzine should certainly not exceed 2 per cent., and, as the amount of soap and oil that the silk will absorb from the soaking bath may also be 2 per cent., the gain from this will equal the loss in waste, and the weight of the silk returned thrown will about correspond with the raw weight sent out. No allowance, in this comparison, need, therefore, be made for the waste in throwing.

If the size of the silk was 13/15 deniers, the price for throwing would be say 65 cents a pound, making the thrown silk $4.90 + .65 = $5.55 a pound, net sixty days, if worked up from the raw.

Take the figures on the so-called extra classical of the thrown silk houses, at the same date, and the quotation is likely to be about $5.25. Is the thrown silk merchant a missionary who works without profit and gives away some money with each pound of silk? He is not, and he finds his account not only in marking the grades of his silks higher than they should be graded, but by loading them in the soaking process.

Raw silk contains a considerable percentage of animal gum in it, the sericin, which warm water softens, and which can be entirely stripped off or discharged by boiling in soap and water. The percentage of this gum varies in different classes of silk. Thus (while there will be considerable variation in the boil off of different lots), the boil off of Japans will average 18 per cent.; Chinas, 19 per cent., and yellow Europeans about 24 per cent.

In the soaking bath, with good quality white silks, which generally have free gums, it is not necessary to add more soap and oil to the bath than what would add 1 per cent. to the weight of the silk; certainly 2 per cent. should be sufficient for almost any contingency. Thus a Japan silk, losing 18 per cent. in the raw, should lose a maximum (for an average lot) of not over 20 per cent. when thrown.

At the same time soap and oil, and sometimes less innocent substances, can be introduced into the soaking bath in such quantity that the silk will take them up, and gain greatly in weight in consequence. Thus we will find market qualities of Japan thrown silks boiling off 25 per cent. and upwards, some thrown silk merchants having the cheek to guarantee a 25 per cent. limit of loss, as if it were something to be proud of.

Here is the milk in the cocoanut. Five per cent. unnecessary loading on $5.00 silk is twenty-five cents a pound, and selling best No. 1 for extra classical is, say, another thirty-five cents, making sixty cents a pound in all, so that the thirty cents lower quotation is really a thirty cents higher price. Some thrown silk people of course may conduct matters on a different plan.

To know just what one is getting in soap and oil, and how much is silk, recourse should be had to the New York Silk Conditioning House, or the United States Silk Conditioning Company, both situated in New York, who make conditioning, boil off, and other tests, at most reasonable rates. Their printed literature gives full information on this subject, of which the importance cannot be overestimated.

The throwing of silk is the twisting of the raw silk to put it in shape for dyeing. Each raw silk thread is composed of several cocoon filaments, lying parallel and side by side, and being held together solely by their natural gum.

If an attempt were made to dye the silk in its raw state the hot water, dissolving the gum, would loosen and open up the filaments which would, of course, become inextricably matted and tangled.

For warp purposes it is necessary to have a very homogeneous thread, which, after being dyed, wound and warped, will stand the chafing of reed and harness in the weaving. It is customary to twist the single raw silk ends about sixteen turns per inch in one direction, and then to double two of them together and twist them twelve or fourteen turns in the reverse direction. Silk so twisted is called "organzine."

For filling purposes, the silk has not as much duty to perform, and it is therefore unnecessary to put in the twist in the single.

Two or more ends, usually three to five, of the raw silk are doubled together, and then very slackly twisted, say three turns per inch, which is sufficient to carry them through the dyeing, winding, quilling and weaving. The silk, being slackly twisted, is more lofty and fills the cloth better, giving a good and full hand. Silk so prepared is called "tram."

Commission throwsters do not vary their price according to the quality of the silk, though they might properly do so, but do vary it according to the size. Thus for organzine throwing, a fairly low average of prices would be 14/16 deniers, 60 cents; 13/15, 65 cents, and 12/14, 70 cents a pound, net cash ten or fifteen days from end of month.

For tram throwing the prices might run, 2 thd., 40 cents; 3 thd., 37 1/2 cents, and 4.5, or 6 thd., 35 cents a pound.

The quality of the work of different throwsters varies much, and, if silk is to weave well, it is most important to have this work carefully done. The silk, too, if poor and irregular, will not make good thrown silk, though a good and careful throwster may lick a bad lot into very fair shape—but at considerable extra cost to himself—while a bad throwster may make sad work of most excellent silk.

The defects that can exist in thrown silk are quite numerous, long knots, imperfectly tied knots, thin places, slugs, loops, corkscrew and irregular tension in the individual threads (inviting cockling) being some of them.

The dyeing of silk is a complex process, and roughly speaking covers the boiling out of the gum, the adding of the weighting or adulterant, and the coloring.

Pure dyeing, that is simply the boiling off and coloring, is cheap, costing perhaps twenty-five cents a pound. Weighting, however, adds heavily to the expense. The list price on 14/16 oz. may be fifty cents a pound, and on 20/22 oz. ninety cents, and very heavy weightings in blacks may run to $1.60 a pound or higher.

A weighting of 14/16 oz. means that sixteen ounces of raw silk, boiling off down to twelve or thirteen ounces, has adulterating material added to it so that the weight is brought up to a point not less than fourteen or more than sixteen ounces; similarly for the other weights.

The dyers have uniform printed price lists, showing the list prices of all dyes and weightings, in full detail. From this list some discount is sometimes given, according to the fluctuating costs of the work, and the size of the business of the customer. On request, any of the great Paterson dyers, such as the Weidmann Silk Dyeing Company, would send a price list to any interested party. Dyeing is a high class chemical art, and it is highly dangerous to give silk to be dyed to any concerns except those of first class reputation, for a lot of silk going wrong, and becoming rotten, will damage the product of a mill to an unbelievable extent.

The writer strongly recommends, if a manufacturer uses fair sized quantities of silk, that he confine his operations to high class raw silk houses, high class throwsters, and high class dyers, and buy no thrown silk except on special and exceptional occasions, and he hopes that the facts set forth in this article will manifestly justify this recommendation. JAMES CHITTICK.

Rubber Warp in a Braiding Machine.

Editor Textile World Record:

In using rubber warp in a braiding machine, I find the tension to be continually changing, one warp having more tension than another. The tension is applied in the ordinary manner. Is there any way to overcome this and how is the tension applied to rubber warp used on a loom?

Newport (1003).

1002: The term lisle thread originated at Lisle (Lille), France, and refers to a very fine hard twisted yarn made for the cotton glove trade. The glove cloth was noted for the remarkable fineness of texture, and almost entire absence of loose fibers on the fabric. Later this class of yarn was used in the manufacture of hosiery. It will be of interest to note the extensive application of this term, which at the present time is used in many instances to designate merely the smooth fiberless appearance of the fabric, even when produced from coarse and inferior yarns. Instances of this are found in the manufacture of low grade hosiery, made from common carded yarns, which are subsequently lisled

in conjunction with the dyeing process, as in the oxidation aniline black, by which the fibers are chemically burned and rubbed away, thus producing a clear foundation to the fabric, similar in effect to that produced by the use of a combed yarn of much finer count as employed in the real lisle products. I have no data as to when this class of yarns were first introduced into the United States.

Palmetto.

Knitting Ladies' Hosiery.

Editor Textile World Record:

We are having difficulty in knitting ladies' hosiery straight. We use 24 single mule yarn. Please state how to remedy this trouble.

Monton (997).

No circular knitting machine knits straight for the reason that each course of loops upon the preceding course are knit in a spiral manner like the thread of a screw. On circular machines where sinkers are used and there are no weights or take-up to roll up the cloth as knit, the natural effect of the circular knitting is shown. Light, flimsy knitting like the sample sent shows the spiral effect more than it does on heavier and closer knit fabrics. On circular machines where weights or take-ups are used this spiral effect is not noticed, but when the cloth is unrolled it will run in a spiral manner. On underwear this is remedied and straightened after the cloth has been wet and dried. On hosiery it is straightened when the stockings are boarded. The only remedy is to run the knitted fabrics through take-up rollers on to a roll. This does not alter the effect of the spiral knitting but merely keeps it straight after it is knit. The roll when unwound will still have a tendency to go back to the spiral effect. Lafayette.

This is a very difficult question to answer without knowing what particular make of machine the stocking was knit on. What will cause this on one machine may not result in any difficulty on another. However, I will endeavor to give the principal causes and remedies which I have found for this defect and Monton may be able to derive some benefit from the suggestions. The first and main cause for this defect is usually found in the needle cylinder not being milled true. If the cylinder is perfectly true and all needles making exactly the same stitch, the work must come straight. If the slots in the needle cylinder are tight and the needle does not work free it will cause the needle to bind and will not allow the stitch cam to act upon the needles freely. This causes the stitch cam to act more indirectly upon the needle and will throw the cam out of line with the sinker ring or head of machine. This can only be remedied by re-milling or filing out the needle clots in the cylinder so as to make the needles work free.

The same trouble may also be caused by the outside sinker ring not being in line with the inside ring or top of needle cylinder as the case may be. The needles being tight in cylinder the stitch cam or the shank of the needle is thrown out of line with the sinkers or hook or needle. This, however, is easily remedied by resetting the sinker ring.

Frequently, however, the machine is found to be perfect and still we find it will not knit straight. In such cases the fault lies in the yarn being twisted too tight. This is especially true on fine gauge machines where single carded yarn is used. In such cases relief is sometimes secured by steaming the yarn. This has a tendency to soften the yarn and the strain is taken from the cotton fibers. All yarns which have an exceptionally hard twist have a tendency to creep. They have the same tendency to after being knit as before. It is this constant creeping or twisting of the fibers which causes the goods to look as though they were knit crooked, while in reality they were knit perfectly straight. The best remedy for this trouble is to place a take-up roller on the machine, as is used on ribbers. By keeping a steady pull on the work it will come through perfectly straight. We have equipped all of our machines, on ladies' hose, with these rollers and have had no trouble with crooked or twisted hose since. Dan Bucklin.

The total export of piece goods from the United States for the fiscal year ending June 30, 1906, amounted to 43 million dollars' worth, of which nearly 30 million dollars' worth was sold to China.

KNITTING DEPARTMENT.

For Knitting Mill Machinery, Equipment and Supplies, see pages 236 to 253. Also Buyers' Index.

THE KNIT GOODS SITUATION.

The past month has shown a little improvement in the matter of business on fall lines. A number of salesmen on the road have reported taking some fairly good sized orders and there has also been considerable business placed by the buyers who are now in the New York market, and so far as we can learn, the manufacturers have accepted all the orders that were offered, but were obliged to ask to have the dates of delivery on some of them changed, as in some cases the buyer wanted the goods at an earlier date than they could be turned out.

From the details that go with some of these orders, it is apparent that the goods have been sold to the retailers for some little time and that the jobbers have waited until this time to place the orders with the manufacturers in the hopes of getting lower prices. Be this as it may, it has worked out all right this season and there will probably be no difficulty in getting the goods delivered nearly on the dates specified, but it is not a safe course for the jobber to pursue as a rule.

There have been no changes in prices of fall lines since last month. Standard fleeces are still being held at $3.75; 12 pound ribbed goods at $3.50, and the chances are that these prices will hold good for the balance of the season.

A large number of buyers have been in the market during the past three weeks and have been doing considerable shopping on spring lines. Practically all the manufacturers have had their lines open and salesmen have been quite active in their efforts to secure orders. According to some of the most interested parties, merchandise was never so low in price. Nevertheless, the fact remains that active spring business has been very slow in getting under way.

The large Western jobbers report that the past six weeks has helped them to reduce stocks of light weights quite materially and it does seem reasonable to suppose that there must be some fairly heavy buying done before the buyers that are now in the market take their departure.

There are quite a number of salesmen now on the road, looking after the smaller jobbing trade and reports from them indicate that the majority of these people expect to be in the market during the month of August and are only taking memos. and asking for samples from the men on the road, stating they will place their orders when they come on. It may be possible that one of the principal reasons that buyers have delayed placing their orders on spring lines is that several changes have already been made in prices since the lines were opened three weeks ago. For example, 4 pound balbriggan shirts and drawers quoted then at $1.80 and $1.85 have been broken as low as $1.6 71/2. These are made with two button inside band drawer, and the above quotation is made by several manufacturers. The 5 pound garment which was started at $1.90 has been trimmed up with rib tail on shirt and sateen band on the drawer with three buttons and suspender tapes, and is now offered at $1.92 1/2.

The Stewart Knitting Company has also made a change in the price of their line of combed ribbed shirts and drawers. These were opened at $3.05 and are now being offreed as low as $2.87 1/2. This is the same merchandise that was sold last year at $3.37 1/2.

Men's balbriggans made from the genuine combed Egyptian yarn weighing 5 pounds are being offered at $3.37 1/2 to $3.50 and by some of the better class of manufacturers.

The Morris Mills are offering their line of men's carded ribbed goods made with double seated drawer at $1.87 1/2. This is the line that was sold last season at $2.17 1/2, and the reduced price means quite a loss to any

jobbers who have carried over any quantity of these goods. This mill is also putting on the market a line of men's combed ribbed shirts and drawers made with grosgrain silk band on the shirt and full trimmed double seated drawer at $3.05.

Robert MacKinnon & Co. are offering 4 pound ribbed tail balbriggan shirt and drawer at $1.85 and 5 pound hem tail at $1.95 with double seated drawer. They also show a line of boy's balbriggans at $1.65 with 10 cents additional for double seated drawer, and a very attractive line of two tone mixtures in men's goods at $1.85 and in plain colors at $1.75.

The Oswego Knitting Co. are showing a line of fancy stitches in a wide range of colors at $3.12 1/2 and also offer combed Egyptian balbriggans at $3.37 1/2.

The Oneita Knitting Company have in their line a 4 pound men's balbriggan at $1.90, with rib tail on the shirts for 10 cents extra. They also make a 5 1/2 pound garment at $2.62 1/2 that gets to the retailer for three shillings and should prove to be a desirable line. They also have a very clean line of men's white goods at $2.75. The latter is made also with coat shirts and athletic drawers, and judging from their sightliness, should prove to be a good selling number.

The Walrath line of men's balbriggans is being shown at prices that range only about 2 1/2 to 5 per cent. less than last year's prices, but notwithstanding the small changes in comparison with other lines, the agents report a very satisfactory business thus far.

The Lawrence line of men's balbriggans show a reduction of from 5 to 7 1/2 per cent. and as usual buyers have placed their orders very freely on this line of goods, possibly having in mind the fact that last year it was necessary for the agents to cut down the orders after having taken them from 30 to 40 per cent.

HOSIERY.

A better tone has pervaded the hosiery market for the last month than for some time past. Many buyers have been in the market and have given it the appearance of considerable activity. Orders are by no means as large as they were last year at this time, but it is believed that stocks have become reduced to that extent that it is necessary for buyers to operate from now on fairly regularly to take care of immediate needs. If they would prepare for a normal advance business, it must mean the placing of orders for large quantities of merchandise.

It is, of course, too early as yet to form any opinion as to the most desirable styles for spring, 1909, as fashion may change in almost any direction during the next two months. There are some high colored striped goods being shown and buyers are touching them rather gingerly, as they are also some of the new patterns of embroidered goods. Plain colors are being shown in every conceivable shade, but little business has been placed on them yet. Some buyers are predicting another tan season, but are not backing up their prediction with orders on tan hosiery. There is a slight tendency toward ox blood in some localities, but it cannot be said that they will be good for another season.

Buyers are placing duplicate orders on fall numbers in a conservative manner, apparently keeping their sales covered with a few cases to spare. Prices remain comparatively firm and sellers say they can see no reason for any changes so long as raw material conditions continue as at present.

There is talk on the part of domestic manufacturers regarding competition from Chemnitz on 25 cent hosiery and there is some agitation for a concerted action to counteract this competition by some means. The slump of business in Germany has caused the hosiery manufacturers there to seek an outlet for their merchandise, even at a sacrifice. With the aid of the German trade agreement they are landing larger quantities of 25 cent goods in this market than for some time past, with the result that a great many of our operators in the hosiery district are idle.

SWEATERS.

Sweater coat manufacturers are well supplied with orders and while the sale at retail has fallen off some on account of the ex-

tremely hot weather, merchants appear to be hopeful of good business in the fall and have placed orders quite freely.

One of the more recent creations for ladies is a fancy stitch coat of brown with plain stitch bands and cuffs of straw color. There is also quite a demand for gray coats with white bands and cuffs.

A large business is being done on cotton sweaters for children to retail at 25 cents a garment. These were started at $2.00 by one New York State manufacturer, but several other manufacturers have gone into the field and they may now be had as low as $1.80.

FULL FASHIONED KNITTING.

BY PAVONIA.

The term "full fashioned" is used to denote knit goods which are knit to perfect shape on the machines without being afterwards cut by scissors or shaped by machinery. The only process required to complete full fashioned work after leaving the knitting machine is the joining together of the edges or selvages. Unlike automatic knitting, this particular kind of work is made on a straight line of needles ranging from 3 inches to 40 inches and over, according to the requirements of the garments to be produced.

Any desired width of fabric can be knit on a full fashioned flat needle bed. On a needle bar 32 inches wide, it is possible to knit fabric any width from 32 inches down by degrees of 2 or 4 needles to even the last two needles. This makes it possible to produce almost any shape. Fig. 1 shows the narrowings on each side of the seam of a man's pant leg. In knitting a piece of fabric both sides can be widened or narrowed simultaneously; one side may be narrowed while the other is widening or either process may be taking place on one side while the other is running perfectly straight; all these operations being required on such goods as ladies' vests and combination suits.

One great benefit of full fashioned work, on underwear especially, is the forming of a selvage by the machine. This is a perfect chain of small loops on the edges of the fabric. These loops are continued along the sides notwithstanding the fact that the width is constantly changing. After leaving the knitting these selvages are laid together and interlaced through the loops by a single thread.

On goods that are shaped by cutting, it is always necessary to cut on the bias, especially on pants, combinations, tights, sleeves, etc. To prevent the broken, ragged edges from running back into the fabric and making holes, it is necessary to hem, and on some goods even to bind the edges with braid.

FIG. 1.

On full fashioned goods the widening and narrowing is generally done on the sides of the fabric and on all goods of this kind the fashioning marks show plainly on each side of the seam where the stitches have lapped over in narrowing and where the spaces have been left in the widening operation.

Sometimes these dots or fashioning marks are close to the seam, say 4 to 6 needles and then again on fine gauges as far as 24 needles away, while on some goods such as combinations, etc., the dots occur in the center of the fabric instead of on the side, a good example being shown on the fashioned bosom of the ladies' vest shown at Fig. 2. In some instances the fashioning is done without the necessity of making a selvage at all, as in the bosom of the combination suit, Fig. 3.

One of the best guides in determining full

fashioned work from cut or automatic goods is these marks, which look like dots and are really double stitches where the fabric has been doubled on the needles. Of course the

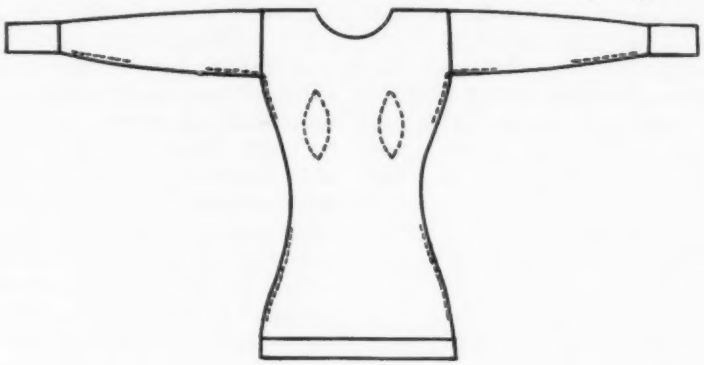


FIG. 2.

number of needles on which the fabric is knit governs the width of flat spring needle goods. It is, consequently, necessary in making the fabric fashioned narrower to reduce the number of needles on which the knitting takes place. If the number of needles is reduced there must be a corre-

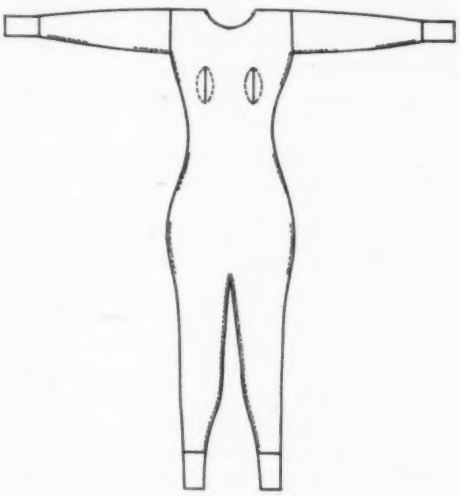


FIG. 3.

spondingly smaller number of stitches. These dots are due to the method of reducing the number of stitches in the knitting by taking the stitches from the needles put out of commission and transferring them to other needles which already have stitches, making a slight thickening on account of the two stitches being on one needle. There are numerous other differences between full fashioned and cheaper goods that an experienced person can distinguish at a glance. It has happened a number of times that on going into a store and asking for full fashioned goods I have been shown goods that were guaranteed full fashioned, which were not full fashioned at all. In some instances even the manager would be called to convince me that I was mistaken when refusing to buy or agree with them. There seems to be in America such a small amount of full fashioned knit goods used that some dealers are not sure that they know just what such goods are and how to distinguish them.

Let us first examine the welt around the bottom of the garment. If it is full fashioned we find on the inside of the inch to 2-inch welt where the double part ends, a continuance of knitting without any break or seam in the joining at all. On cut work the welt is made after the fabric has been knit by being turned down and stitched on a sewing machine, leaving an unfinished edge which is easy to distinguish.

Next we examine the method in which the sleeves have been connected to the body. On full fashioned goods the selvage of the body enables the connection of sleeves to body to be made by a similar interlacing process as that of two regular selvage edges. We, therefore, find a clear, even joining with scarcely any thickening from the regular fabric. On cut goods the sleeves are connected to the raw edges of the fabric and

consequently the same hem, possibly a little thicker on account of the fabric coming together at right angles, will be found all around the joining of sleeve to body.

Next we look at the sleeves themselves. If we find the dots on both sides of the seams and if the selvages are connected by a lacing thread with no hemming along the seam we may rest assured we have found a full fashioned garment. The same examination will show a marked difference in all other

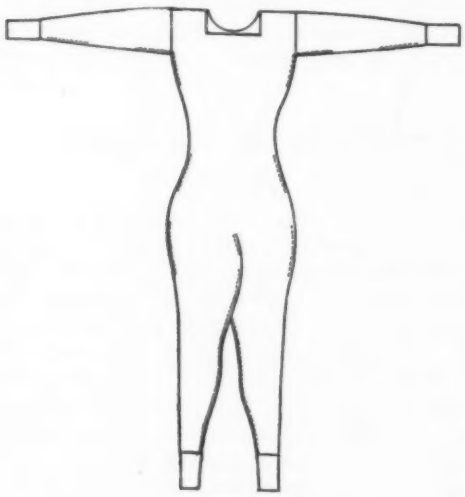


FIG. 4

goods that are shaped on a full fashioning machine. Figs. 3 and 4 are respectively front and back view of a ladies' combination suit with selvages and fashioning marks shown.

The advantage of full fashioned work over cut work on combination suits can be seen at a glance. When the shaping is done on the machine it is in every way perfect; the process being slow and the greatest care and skill being used to get the required width at every point, the width being regulated to a single needle at all times. On scissors-shaped goods and combinations the garment is just as liable to be an inch or so too narrow or too wide, according to the care of the cutter who works to a given pattern. A knitted fabric after being taken from the machine often gets stretched in width and consequently the cut garment may again be badly shaped although the pattern may be closely followed by the cutter. Again in stitching and hemming the seams together the operator is liable to run considerably from the guide mark, thereby either cutting off too much or leaving that part too wide. As such goods are mostly cut on the bias the necessity for heavy seams is increased. It is evident that a full fashioned article is not only neater and much better looking, having no bulky seams or lumps to bother, but is shaped in the only manner by which a well fitting garment can be obtained.

There are a number of methods of making full fashioned hosiery and underwear. Originally they were made on machines operated by hand or foot power, with scarcely any mechanical contrivances outside of those necessary to produce a plain knit fabric. On these old fashioned machines it is possible to produce underwear of the very finest quality and it is acknowledged that goods made on these antiquated machines cannot be excelled for either durability or shape. The most attractive and complicated designs of lace work on hosiery are now made in some parts of England and Germany on these old frames. Many of the patterns made on these machines have never been duplicated on any power knitting machines.

The modern automatic power machines have been developed during many years from these old hand machines. There are a number of systems of partially automatic full fashioned knitting. This "Kilbourne" system has been in use for many years and has proved very successful. The one which has achieved the greatest success and by which the greatest variety of knit wear can be made is the "Cottom" system. This system was invented by Wm. Cottom of Loughborough, England. Many people are under the impression that these machines are capable of knitting goods out of cotton only. This erroneous idea arises no doubt from the fact that the system bears the name of the inventor. Wm. Cottom was a hand machine worker and evolved his patent directly from the hand machine which he operated for a great many years.

For a number of years these machines were manufactured at the works established by the inventor at Loughborough. On the

expiration of the patents, other firms both in England and Germany began to construct them. At the present time there are more than a dozen well known concerns building machinery on the Cottom system. Each of these firms use their own mechanical methods of performing automatically the operations that were originally worked by hand. By a widely diversified and constantly increasing number of appliances the machines have become to a great degree automatic. Full fashioned machines, however, can by no means be termed "automatic" for there are a number of important operations that must still be performed by hand. During the process of knitting the machines must be stopped a number of times. On some goods as much time is consumed in the hand operating with the machine standing idle as in the actual knitting of the garment. Probably the most important change made in recent years has been enlarging the machines, especially the hosiery machines. From the old timer of 4 to 6 sections they have been lengthened section by section until at the present time there are machines which are knitting as many as 24 stockings at a time. These machines are over 40 feet in length and on the finer gauges there are more than 50,000 parts to a single machine.

(To be continued.)

Making Hosiery from Mercerized Yarn.

Editor Textile World Record:

What is the best method of making hosiery from mercerized yarn? I have been using dyed yarns but find them harsh and very apt to make defects in the heel and toe. Should mercerized yarn be twisted as soft as other hosiery yarns?

Cherokee (991).

991: There is very little difference in the manufacturing of hosiery, either in the natural or the dyed yarn. The way the work runs depends upon what class of yarn is used and whether it is properly twisted and softened. Anyone buying mercerized yarn will find it very difficult to get yarn to run well on the machine. I have found by rewinding and using the following softener that the yarn will run much better:

8 lbs. olive oil soap;
1 gal. lard oil (bleached);
1 lb. sal soda;
Add 5 gals. water. Boil for one-half hour and then add water to make 20 gallons.

A tin or wooden roll driven from belt on winder shaft is immersed in a trough filled with the softener and extending the length of the winder. The roll is revolved slowly. The slower the roll revolves the less softener it feeds to the yarn. The roll should run in the opposite direction to that of the yarn. I have used this device on cotton and woolen yarns for a number of years and always found it satisfactory. It is better to make hosiery in the grey and dye in the goods, as this gives a much better fabric. The twist should be soft hosiery twist, both in the single before twisting and in the ply after twisting. In this way better results are obtained in mercerizing and the yarn runs much better on the machines. I have mercerized single yarns from 8s to 60s with very good results, but it is very slow work and costs double the price of ply yarns.

Ravenswood.

991: In making hosiery from mercerized yarn the best method is to knit it in the natural and dye the goods after. Dyed yarns are usually harsh and causes more defects in the knitting and do not take as good a finish as when the goods are dyed after knitting. Single twisted yarns can be mercerized. The twist can be as soft as any other hosiery yarn, in fact a hard twisted mercerized yarn does not show the luster as well as a soft twist. In knitting mercerized yarn very close attention should be given to the tension on the yarn and gauging the stitch on the machine.

Profile.

It is estimated that about 25,000 persons are employed in the cotton weaving and printing factories of Switzerland.

William Lee, of St. Johns College, Cambridge, was in the year 1589 expelled from the University for marrying contrary to the statutes. Having no fortune, the wife was obliged to contribute towards their joint support by knitting and Lee, watching the motion of her fingers, conceived the idea of imitating those movements by a machine.

FANCY KNITTING DESIGNS.

BY F. W. HERINGTON.

Fancy knitting like that shown at Fig. 170 is obtained by tuck presser work on circular spring needle machines. Fig. 174 is a sketch of the design, showing two patterns running parallel with each other.

Fig. 172 is drawn from Fig. 174. Fig. 171 is a double sketch of the design vertically and horizontally. Figs. 171, 172 and 174 show only the tuck courses of the design.

Fig. 173 is the same section of the design as shown at Fig. 172, but it shows the alternate plain courses of knitting, which are represented by the blank squares, numbered on the right with the even numbers 2 to 28 inclusive, the numbers on the left, 1 to 14, being the tuck courses.

Fig. 175 is an enlarged drawing of the knitted loops, and shows both the tuck and plain courses of the knitted fabric as illustrated by Fig. 170. The courses of loops marked 1 to 14 on the left represent the tuck stitches. They cross the previous row of plain stitches in a straight line at the back.

will show the pattern, but in order to have the pattern show more prominently, two

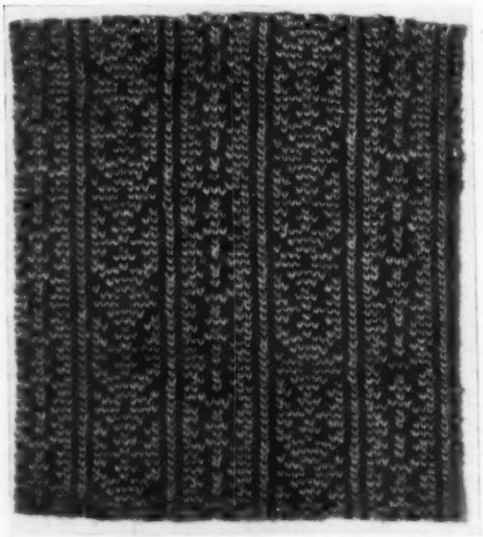


FIG. 170.

colors are used, such as brown and white, black and red, etc.

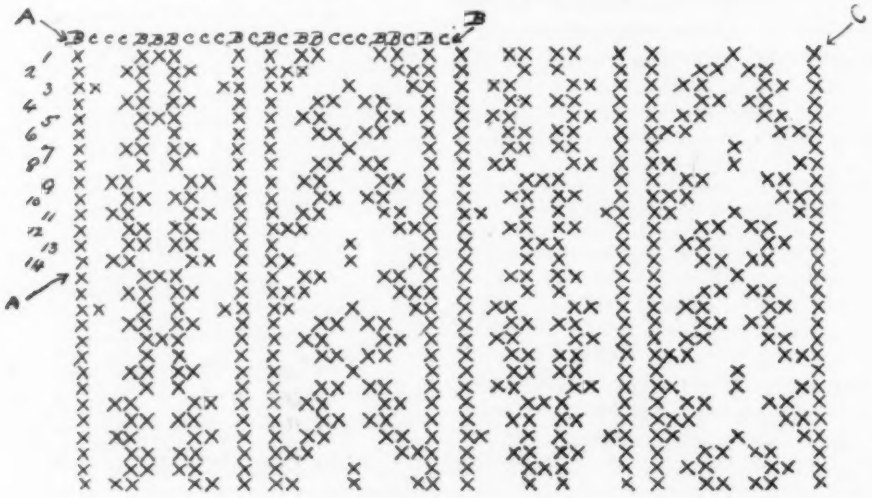


FIG. 171.

The alternate courses of loops, marked 1 to 27 on the right, are the plain stitches.

These designs can be made with a single thread of the same color of yarn on both tuck and plain courses. The tuck stitches

I will show first how the design is produced on a machine having two plain presser feeds, and two tuck presser feeds. The pattern can also be made with 2, 6 or 8 feeds. In that case the tuck pressers, Figs.

176 and 177, would have to be cut differently in order to produce the same design.

This design, which is double, can be produced as two separate designs, and with only two feeds on the machine, one plain, and one tuck presser feed.

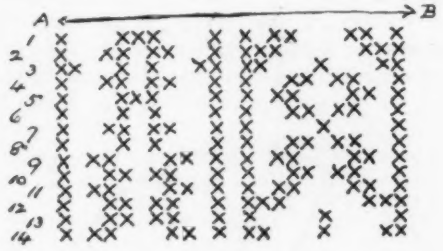


FIG. 172.

At Figs. 171, 172 and 173 each square of the design paper marked X and B represents a tuck stitch as shown at Fig. 175. Each blank square marked C represents a plain stitch or loop as shown enlarged at

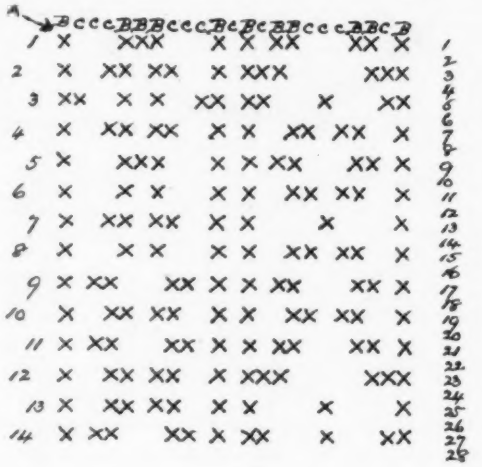


FIG. 173.

Fig. 175. Starting at A, Fig. 173, in the left hand corner at the top, the first square on the first course marked X and B represents a tuck stitch; the next three are blank squares marked C and represent plain stitches; the next three, B, are tuck stitches.

Counting the courses downward on Fig. 171 from A at the top, we find 14 courses complete the design. The 15th course is the same as course 1. The pattern will continue to repeat at every subsequent 15th course. There are 24 squares from A to B, Fig. 171, consequently the design as shown at Fig. 172 contains $14 \times 24 = 336$ stitches, not counting the alternate plain courses of loops. As

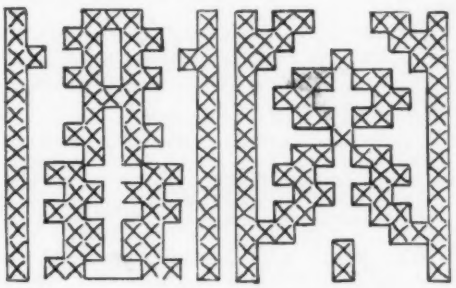


FIG. 174

the design is to be produced with two tuck presser feeds, they will each require 168 cuts. Each is subdivided into 7 sections of 24 cuts each. Each section will represent one of the courses from A to B, Fig. 172.

As each alternate feed or course of

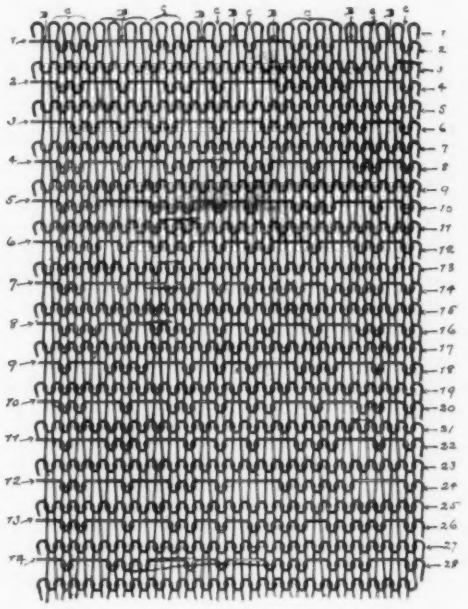


FIG. 175.

stitches is plain, the tuck stitches are thus cast off, but in sketching the designs only the courses of tuck stitches are drawn. The

whole design when knit will be 28 courses deep and 24 stitches wide, or $28 \times 24 = 672$ stitches, as shown at Fig. 175.

These tuck pressers produce both tuck and plain stitches, the tuck stitches being shown at Fig. 175 where the straight line crosses the previous course of plain loops. The tuck stitches cause an elongation of the loops which are part of the previous course of plain stitches, as the tuck stitches, B, are formed by not being pressed off until the succeeding plain presser feed is reached, when the elongated plain stitch with the tuck stitch so held, is cast off, when the tuck stitch results in a loose thread at the back of the knitted fabric. Owing to this loose thread at the back caused by the formation of the tuck stitches, it is not desirable to have more than 3 or 4 tuck stitches come together, as the length of the loose thread would be too great. As the number of stitches in this design is 336, not counting the alternate plain courses, the tuck pressers, Figs. 176 and 177, will each have 168 teeth, or $168 \times 2 = 336$.

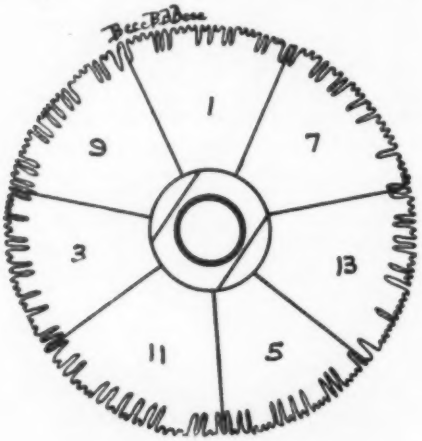


FIG. 176.

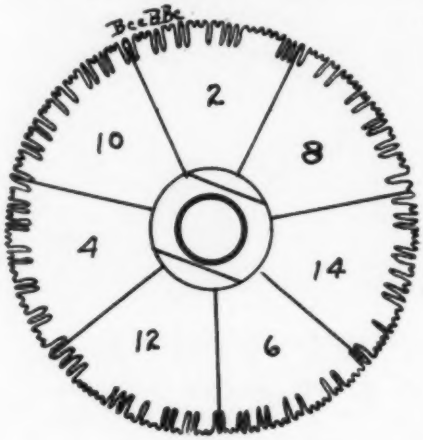


FIG. 177.

Each presser is subdivided into 7 sections of 24 cuts each, but as Fig. 176 shows section 3 following section 9 to the left, the number of needles in the cylinder will have to be divisible by 168 with a remainder of 48 needles. Thus after each revolution of the machine the tuck presser is carried forward 2 sections, or 48 needles to the right, which leaves section 3 to come directly under section 1, Fig. 176. As section 2, Fig. 177, would be started on the same needle as section 1, Fig. 176, section 3 would thus follow 2, and section 4 would follow 3, and so on after every revolution of the machine.

The cuts for each section of the tuck pressers, Figs. 176 and 177, correspond to the section of the design, Fig. 172. The numbers at the side correspond to the numbers on Figs. 176 and 177. Each section of the tuck pressers is read from left to right, as is also the section of the design, Fig. 172.

The small indentations or cuts, C, Figs. 176 and 177, represent the plain stitches; the deep cuts, B, the tuck stitches.

The deep cuts, B, when they come in contact with the needles, do not press off the stitches, but they remain on the needles with the previous plain loops, until the succeeding plain presser feed is reached, when both are pressed off. The tuck stitch then becomes the straight loop across the previous plain loop. When the small cuts, C, of the tuck pressers come in contact with the beards of the needles, they close them and plain stitches are produced.

(To be continued.)

In Barmen, Germany, there are some 80,000 braiding machines with probably 3,000,000 braiding spindles. Of these machines it is estimated that between 8,000 and 10,000 are devoted to the specialty of Barmen lace

Full Fashioned Hosiery Machines.

Upon the death of David Richter, Chemnitz, Saxony, manufacturer of full fashioned hosiery machines, his business was incorporated by the heirs under the name of David Richter, Inc. This firm has continued to build the David Richter machine, for many years so well known to the American trade. The new corporation is now largely increasing its plant and will, therefore, be able to meet promptly all demands.

The David Richter, Inc., have also designed an improved machine of the David Richter pattern, and will be glad to furnish those interested therein with details of same. The improved machine will be ready for the market in about three months.

Wolfgang Richter, the former representative of the company in America and Canada, having severed his connection with the company, has been succeeded by Hugo Huettig as the American representative, with an office, which has recently been opened, at 581 Bourse Building, Philadelphia, Pa. Mr. Huettig is well known to the knitting trade, having been employed in former years by the late Paul Schlossmann, and also for a period of five years as the general manager and vice-president of the German-American Hosiery Co., of Philadelphia, one of the most successful full fashioned hosiery manufacturers in this country. Mr. Huettig's long experience in this line of business, not only as a salesman of full fashion machines but as a manufacturer of full fashion hosiery, places him in a position to be able to explain the many advantages of this machine.

Repairs to Full Fashioned Hosiery Machines.

Having severed his connection as the American representative of David Richter, Inc., manufacturers of full fashioned hosiery machinery of Chemnitz, Saxony, Germany, Wolfgang Richter will continue to build and repair this class of machinery at his works, 535 North Lawrence St., Philadelphia, and announces to manufacturers that any work entrusted to his care will receive prompt and immediate attention.

KNITTING MILL NEWS.

New Mills.

*Georgia, Brunswick. The new knitting plant, known as the Brunswick Knitting & Manufacturing Co., incorporated some time ago, has equipped its plant and the officers announce that manufacturing will start shortly.

*Illinois, Decatur. The Hinman Knitting Co. will not be ready for manufacturing until September 1, as there has been some delay in setting up machinery. This is a new knitting mill company incorporated with capital stock of $20,000 some months ago and regarding which full particulars have been given. The product will be full fashioned hose and seamless hosiery, and about 20 hands will be given employment. R. P. Hinman is pres. and buyer, H. C. Hoagland, treas., and John Dakin is supt.

*Maine, Topsham. The new Max-Mar-Lan Knitting Co. has leased suitable buildings and expects to begin production early in the fall. At first men's hosiery of all kinds will be the product, but eventually women's and infant's hosiery also will be made. The initial equipment will consist of 20 knitting machines and 5 ribbers, giving employment to about 30 hands. There is a dye house connected with the buildings leased which will be put into condition and used for finishing the product. Steam power will be used. None of the machinery equipment has been ordered and they are interested in information relating to a 50 h. p. boiler, a 25 h. p. engine, dynamos, knitting and winding machinery, hosiery finishing machinery and all knitting mill supplies. The work of remodelling buildings is being done at present. Chas. E. Lancaster is pres., Herbert Q. Mariner, treas. and Chas. B. Maxfield is supt. and buyer.

*New Jersey, Camden. The Nelson Mfg. Co. has asked for a charter with James J. Seal, Charles P. Nelson and Wm. S. Nelson as incorporators. The company has capital stock of $100,000 and as mentioned in these columns at the time of starting the plant, will equip for the manufacture of bathing suits, eiderdowns, sweaters and other knitted fabrics. The product is sold direct.

*New York, Fowlerville. Building operations will begin at once on the site purchased by the new Fowlerville Knitting Co. This corporation was formed in May and has capital stock of $10,000, with the following officers: John Torrey, president; S. D. Ensign, treasurer; and E. W. Hargrave, secretary. The proposed equipment is 9 to 12 knitting machines and 5 sewing machines, which will be operated on sweaters, toques, mittens and novelties.

*Pennsylvania, Ariel. The machinery equipment has been set up in the plant of the new Ariel Knitting Mill Co. and the manufacturing will begin in a few days. This company was incorporated in June with a capital stock of $15,000 and purchased the underwear machinery of the United States Knitting Co. of Hawley. J. W. Sandercock is general manager and buyer.

*Pennsylvania, Philadelphia. Harry Munz, who was reported last week to be equipping a plant for the manufacture of high grade hosiery, in the rear of his home, 2048 East William St., has placed an order for 7 National 216 needle machines and additional machinery including loopers and ribbers, with James Taylor.

*South Carolina, Lexington. It is stated that the Rikard Knitting Co., incorporated in June with capital stock of $10,000, will begin manufacturing in a few days. Twenty-five knitting machines for manufacturing hosiery have been set up. Mr. Redd is sec. and treas.

*Pennsylvania, Towanda. The Towanda Knitting Co., which recently failed, has been reorganized by Henry Carter, its former manager, and others, and started up again with its old equipment of 34 knitters on seamless lace and rib top cotton hosiery which they dye, bleach and finish. The name of the new company is the Towanda Manufacturing Co.

Rhode Island, Central Falls. Wm. Comery is starting a small hosiery plant, manufacturing men's fancy hose. It is understood that 4 machines are in operation, although Mr. Comery will not make a statement for some days.

*West Virginia, Fairmount. The new Knox Sox Co., details of which were given in June, has started manufacturing on six machines. Seamless hosiery is the product.

Enlargements and Improvements.

*Alabama, Fort Payne. Plans are progressing for adding to the equipment of the Florence Hosiery Mills. As reported some time ago, 50 new knitting machines will be added. This is a branch of the Davis Hosiery Mills of Chattanooga, Tenn.

*Indiana, Fort Wayne. Work is progressing on the foundation for the new building to be erected for the Wayne Knitting Mills, Inc. The dimensions of the new structure will be 40 by 220 ft. instead of the dimensions previously given. The new machinery equipment will consist of German full fashioned machines and it is expected that the full new equipment will be in operation from September 1 to 15. In May the capital stock was increased from $700,000 to $1,000,000.

Michigan, Muskegon. A brick warehouse, 250 by 100 ft., will be erected by the Amazon Knitting Co. at a cost of approximately $15,000. Ladies' and children's ribbed underwear is manufactured by this company on 24 latch needle knitting machines and 255 sewing machines. M. H. Powell is supt. and buyer.

New York, Elmira. The Elmira Knitting Mills, Inc., contemplate extensive repairs and the mill will be shut down for two weeks to allow of their being made.

*New York, Greenwich. The addition being erected for Jesse V. Palmer Co., Inc., will be equipped with machinery to manufacture paper boxes in which their product is put up for the market. Machinery contracts have not been awarded. Ladies' and men's jersey ribbed shaped underwear are manufactured on 55 latch needle knitting machines and 45 sewing machines. The mill is in full operation.

*New York, Stittville. About August 1 improvements to the plant of the Stittville Knitting Co. will be completed and the mill will start up in full. Improvements include the installation of a new boiler, putting a new roof on the building, and the building of a new steel water tank to take the place of the large tank formerly located on the mill roof. W. A. Ainsworth of Utica, N. Y., who represented Scott & Williams, manufacturers of knitting machinery, for a number of years, has been appointed manager of the Stittville Knitting Co.

*Pennsylvania, Leesport. It is reported that construction work has started on the new 50 ft. addition to the Eagle Knitting Mills Co.'s plant.

*Pennsylvania, Reading. In addition to installing more full fashioned knitting machinery of fine gauge, the Berkshire Knitting Mills are equipping a new dye house and expect to be in a position to do their own dyeing and finishing inside of a few weeks. Ferdinand Thun is pres. of this company, Henry Janssen, vice-pres., and Gustav Oberlaender is sec. and treas.

*Pennsylvania, Scranton. Adolph Haefner, superintendent and buyer of the Scranton Hand Knitting Works, spent several days in Philadelphia recently and ordered several knitting machines of James Taylor, 121 Arch St. The Scranton Hand Knitting Works recently reorganized and it is reported will make a large increase in equipment.

South Carolina, Newberry. The Ashley Mfg. Co., which manufactures seamless cotton hosiery on 61 latch needle knitting machines, has been experimenting on silk hosiery. It is stated that the experiments have been very successful and that the company may shortly add the manufacture of silk hosiery to the present line of cottons.

*South Carolina, Walhalla. The plans for the enlargement of the Oconee Knitting Mills include the installation of 100 additional knitting machines divided as follows: 40 Banner, 40 Invincible and 20 Acme, with complementary machinery including ribbers, loopers, singeing machine, etc. This will give an equipment of 179 knitting machines. Recently the capital stock of this concern was increased from $30,000 to $50,000. An additional building is now in process of construction. R. T. Jaynes is pres.; James M. Moss is treas., acting supt. and buyer. The plant is operated by steam power and product sold direct.

*Wisconsin, Beloit. Improvements at the plant of the Racine Feet Underwear Co. are in the form of a building, 110 by 15 ft., to be used for the storage of coal only.

*Wisconsin, Milwaukee. The Everwear Hosiery Co. has moved into its new factory building at 172-178 5th St. In the report of the increase of the capital stock of this concern from $40,000 to $100,000, the title Norway Hosiery Co. was incorrectly used.

Wisconsin, Milwaukee. An amendment to the charter of the Imperial Knitting Co. has been filed, increasing the capital stock from $50,000 to $75,000. It is understood the increase will be used for enlarging the plant. All kinds of sweaters and cardigan jackets are made of wool and worsted on 32 flat knitting machines and 15 sewing machines. Albert Blatz is president and Otto A. Finck is sec., treas., and buyer. The plant is at 1215-19 Fourth St.

Mills Starting Up.

Connecticut, Naugatuck. The Dunham Hosiery Co. has resumed manufacturing after a shut down of two weeks. The demand for their goods is increasing and it is reported that the prospects for a good fall trade are increasing.

New York, Cohoes. The knitting mills which were shut down for several days on account of repairs to the Cohoes Co.'s canals resumed operations Monday morning.

Pennsylvania, Philadelphia. The Oak Lane Knitting Mills, 78 Wister St., Germantown, man-

ufacturers of women's and children's worsted and cotton ribbed underwear on 15 knitters and 20 sewing machines, have been started up after a short idleness. The company has plenty of orders on hand and will run the mill full time.

*Vermont, Northfield. The plant of the Vermont Hosiery & Machinery Co. is again running full time after a two weeks' shut down. A new sprinkling system has been installed.

Mills Shutting Down.

Massachusetts, Ipswich. Notices have been posted in the Ipswich Mills to the effect that the plant will close for the annual vacation August 1 and will resume work Monday, August 17.

Massachusetts, Methuen. The Lawrence Knitting Co. has shut down its plant for a few weeks. Men's, women's and children's hosiery is manufactured on 44 knitting machines.

Pennsylvania, Norristown. The plant of the De Kalb Knitting Co., containing 75 knitters which were run on men's seamless and children's ribbed hosiery, has been shut down and the floors occupied by them are for rent. It cannot be learned whether they are to start up in another location or not at the present time.

Pennsylvania, Philadelphia. It is reported that W. F. Taft & Co., manufacturers of eiderdowns on 24 knitting machines at the S. W. corner of Adams and Coral Sts., have shut down their plant with the intention of retiring from the business and disposing of their machines.

Facts and Gossip.

Illinois, Kankakee. It is reported that the Paramount Knitting Co., Chicago, will add machinery to its plant at this place, removing it from the plant at South Boston, Va.

Kentucky, Paducah. The Wisdom Hosiery Mills, which recently took over the plant of the Dixie Mills, are running overtime on account of the number of orders on hand.

*Massachusetts, Saugus. It is rumored that an underwear and hosiery manufacturer will lease the buildings of F. Scott & Sons. It will be remembered that the woolen mill equipment was sold at auction a few days ago.

*Massachusetts, Wakefield. Reports that the Harvard Knitting Mills will shut down during July and August are denied by Winship, Boit & Co., who are the proprietors. The mill is being run four days a week and no change in the schedule is anticipated for some weeks.

Massachusetts, Waltham. The American Knitting Co., now located in its new factory building, is running overtime to fill orders.

New Jersey, Beverly. It is expected that the Turner Birkhead knitting plant will resume operations in a few weeks under the management of a Philadelphia firm. New machinery will be put in and shirts as well as hosiery will be manufactured. It will be remembered that Turner Birkhead went into bankruptcy several months ago.

New York, Cohoes. The Himes Underwear Co. and the Clarke & Holsapple Mfg. Co. are working on an increased number of orders and starting up additional machinery.

New York, Mohawk. It is reported that Mr. Brayton, formerly superintendent of the Mohawk Valley Knitting Mills, is trying to organize a company to operate the plant.

New York, Troy. At a meeting of the creditors of the Wayside Knitting Company on July 6 it was decided to offer the property of the company for sale at public auction. It is understood that parties are forming an organization to take over the plant and put it in operation at an early date.

*Pennsylvania, Hawley. No change will be made in the plant of the United States Knitting Mills Co. on account of the Julius Brandes Mfg. Co. of Paterson, N. J., securing controlling interest.

Pennsylvania, Philadelphia. James Taylor, 121 Arch St., has shipped a number of knitting machines to purchasers within the last few days. Mr. Taylor says that business shows considerable improvement.

Pennsylvania, Scranton. The Scranton Hosiery Mills on Pear St., near Cedar Ave., have been shut down. The company, which had a capital of $50.000, with George Wahl, pres.; F. J. Helreigel, treas., and N. R. Kline, supt., have been liquidating their affairs and it is reported will not start the plant up again. The mill contained 62 knitters, 9 ribbers and 8 loopers, which were run on cotton and lisle seamless half hose and children's and infants' hosiery, which they dyed, bleached, and finished on the premises and sold through New York.

Pennsylvania, Williamstown. The Unrivalled Hosiery Mills, manufacturers of seamless hosiery on 38 knitters and 7 ribbers, have recently incorporated their business with a capital of $15.000. The officers of the company are Edgar D. Rank, pres. and treas., and George B. Mellon, supt.

Personals.

James Tierney of the Erie Knitting Mills, Cohoes, N. Y., gave an outing to the employes of the mill June 25 at Latham's Corner. Michael Marra was master of ceremonies.

William B. Ainsworth has been appointed superintendent of the Stittville Knitting Company, Stittville, N. Y., succeeding B. H. Zimmerman.

Geo. Reepler of Doon, Ontario, Canada, has accepted a position as overseer of knitting for the Colorado Woolen & Knitting Company, Denver, Col.

W. H. Buckley has accepted the position as superintendent of the yarn department for the Standard Hosiery Company, Philadelphia Pa.

Albert E. Riley, overseer of dyeing for the Oneita Knitting Mills, Utica, N. Y., has severed his connection with that company.

John Dakin has accepted the position as superintendent of the Hinman Knitting Company, Decatur, Ill. He comes from Fort Wayne, Ind.

New Machinery and Processes.

This department is designed to present from month to month a brief mention of new machinery, devices and processes being brought out in this country and abroad, that are of interest to textile manufacturers. It is not a list of patents, but of improvements coming on the market. The idea being to present to our readers a systematic monthly record of new machinery etc., of interest to textile mill men.
We invite machine builders and others to send us such information for this department.

Lock-Stitch Sewing Machine. The Standard Sewing Machine Co., Cleveland, O., have recently placed on the market a new high-grade lock-stitch sewing machine adapted not only for the knit goods trade, but for the entire cutting-up trade.

Thread Guide. Howard & Bullough, Accrington, England. A thread guide for doubling frames designed to prevent the snarling of the threads. There is an extra wide space between the nip of the rollers and the rail when the machine is stopped.

Folding and Measuring Machine. J. Brierley, Clough Bleach Works, Whitefield, England. An improved folding, winding and measuring machine for woolen goods.

Backwashing Machine. Taylor, Wordsworth & Co., Leeds, England. An improved backwasher for worsted. The improvement consists in drying the sliver by hot air instead of steam heated cylinders. The slivers are passed over perforated cylinders arranged like the steam cylinders on the old machine. The hot air is forced into the interior of the cylinders and passes through the perforations and sliver, the cylinders simply acting as supports for the sliver.

Gill Boxes. Jules Devallee, Roubaix, France. An improved faller for gill boxes in which it is claimed the faller pins are held in a perpendicular position while in operation.

Loom for Warp Pile Fabrics. Hutchinson, Hollingworth & Co., Dobcross, England. An improved loom for weaving warp pile carpets designed to relieve the strain on the warp.

Decorating Fabrics. Henri Schmid, Muelhausen i. Els., Germany. A process of applying metal powder and other decorative materials to the surface of fabrics.

Yarn Drying Machine. Friedrich Haas, Lennep, Germany. A drying machine for skein yarn which dries the yarn and then moistens it so as to restore the normal degree of moisture.

Warp Printing Machine. Alfred Salzman, Friedenau, near Berlin, Germany. A warp printing machine arranged to print both sides of the warp and thus secure a better penetration of the material by the color.

Reclaiming Potash from Wool. Ernst F. Bernhardt, Leisnig, Saxony. An apparatus for reclaiming the potash from wool and securing the liquor.

Ripping Machine. A. F. Craig & Co., Paisley, Scotland. An improved machine for cutting the floating threads from the back of goods that have been ornamented with extra filling threads. It is automatic in action, including the sharpening of the knives, and is suited for any design down to 5/8-in. floats.

Sizing Machine. Fielden & Co., Rochdale, England. An improved sizing machine, the object of which is to keep the size uniform by means of a forced circulation of the mixture.

Doffing Device. John Hamer, Balderstone Mill, Rochdale, England. A device for doffing bobbins on ring spinning frames.

Horse Hair Cloth. Henderson Bros., Somerset, England. An improved loom for weaving horse hair cloth.

Safety Device for Cotton Cards. W. L. Holland, Adelphi Works, Preston, England. A device by which the cover of the card cylinder is automatically locked when the card is running and can be unlocked only by stopping the machine.

A NEW WARP COMPRESSOR FOR SLASHERS.

During the last 12 years two styles of warp compressors have been successfully operated in the woolen, worsted and custom-warp mills, resulting in gains of from 25 to 75 per cent. more yarn per loom beam, at the same time making a better weaving warp and an evener piece of cloth. The popularity of this machine is best shown by the great number which are now in active operation. More than 2,500 were sold during the past ten years.

The cotton manufacurers have long looked with envy at the extreme gains made by these compressors in the woolen and worsted mills and a number of them have requested that this device be adapted for use on their cotton slashers and beamers. During the past year the Worcester Warp Compressor Co., of Worcester, Mass., has developed an all-round, universal warp compressor as an attachment for slashers, and this firm is now in a position to supply compressors of any dimensions, which can be attached to any make of slasher or beamer. To make this compressor successful, it has been necessary to reverse the motion of the loom beam, so as to wind against the compressor, at the same time laying the yarn on the beam just ahead of the point of contact between the compression roll and the beam. This has been accomplished by placing a pair of stands on the floor in front of the slasher; the head stand contains a sliding steel spindle which drives the loom beam. On this spindle is placed a gear which meshes into a similar gear placed on the spindle that passes through the friction drive, thus utilizing the friction mechanism of the slasher without any change, at the same time reversing the motion of the loom beam. These two gears are entirely covered with a shield which acts as a guard, and prevents the gears being forced out of mesh. The tail-stand is placed at the opposite side of the slasher front, and contains a second sliding spindle which holds the loom beam in position.

The warp compressor is placed underneath the yarn and back of the beam, entirely out of the operator's way. It consists of an adjustable compressing roll which is held firmly against the beam by means of two or more pressure arms, which are bolted to a cast iron shaft. These pressure arms are equipped with wide faced roller bearings, which apply the pressure of the compression roll. The arms are capable of adjustment to insure even pressure and alignment over the entire length of the loom beam. The power is applied to the pressure arms by a chain lever, which is placed at any convenient point, just outside of the slasher frame. Any desired amount of pressure can be applied.

The compression roll is adjustable for various widths of warps by means of an expanding ring at one end of the roll and a long sleeve with a series of wide and narrow rings thereon, which is fitted into the other end, thus making a universal roll that may be set at any desired width.

It is stated that the whole attachment occupies but eight or nine inches more room in front of the slasher and requires no more power than the old style, bottom press roll.

The operation of beaming off is similar to that now in use, except that the motion of the beam is reversed, the yarn being fed to the compression roll immediately after it becomes tangent with the beam. Only a small pressure is necessary, but it is a dead, rolling pressure, and coupled with the fact that it is applied all through the warp (that is, each layer of yarn is rolled as it is wound on the beam), the small amount gained on each layer, being constantly repeated, it amounts to a great deal at the end of one, two, or three thousand yards.

After starting, the operator does not touch the compressor until the beam is full; then by means of a lever he forces the machine back, strikes his comb, and removes the full beam as usual. The greatest gains are made on the friction driven slashers, because the friction driven machine does not pull the warp threads with as great tension as the direct gear drive. The compressor is equally effective on fine or coarse yarns and cannot injure the finest or tenderest threads, because it simply rolls the yarn as it is wound on the beam. At the same time it produces a perfectly round, even beam, exactly the

same size from end to end. This insures an even let-off, each and every thread getting its proportionate share of the strain in weaving, thereby making a better weaving warp and an evener piece of goods.

On cotton duck and like fabrics, the extreme hardness of the warp is a very desirable factor, as it allows the loom to beat the picks home without any give in the warp. As the let-off is uniform the fabric made is hard and firm.

The builders state that the amount to be gained per loom beam varies with the number of threads per inch and the size of the yarn, but that these gains are fairly constant and range from 25 to 60 per cent. This gain in the amount of yarn per loom beam enables a slasher to dress warps for a great many more looms, because the compressed warps last many days longer in the loom, which gives the slasher-tender just that much more time.

The warp compressor also effects a great saving of waste, drawing or twisting-in, also the time of handling the warps and hanging them in the looms. It has been found that five slashers equipped with compressors will do the work of six without, thus saving the labor of one or more men, also the power, steam and other expenses.

Following is the builders' comparative estimate of what a Worcester warp compressor will do when attached to a cotton slasher:

No. 1.

Loom beams between heads	54 in.
Number of ends single 15s	5,500
Using old press roll	300 yds.
Using a Worcester warp compressor	550 yds.
Net gain	50%

No. 2.

Loom beams between heads	40 in.
Number of ends single 24s	3,800
Using old press roll	770 yds.
Using a Worcester warp compressor	1,200 yds.
Net gain	56%

No. 3.

Loom beams between heads	34 in.
Number of ends 2/24s	1,500
Using old press roll	900 yds.
Using a Worcester warp compressor	1,500 yds.
Net gain	67%

THE "SUCCESS" CHEMICAL FIRE EXTINGUISHER.

The H. W. Johns-Manville Company, 100 William St., New York, have recently put on the market the "Success" portable fire extinguisher. It is made of extra heavy Lake Superior cold rolled copper, securely riveted and reinforced by heavy shoulders of solder, each of which is tested to withstand a pressure of 350 lbs. to the square inch, or four times the required strength. The joint where the cover is attached is ordinarily the weakest part, but the method of attaching the dome to the body of the shell is said to make that joint the strongest part in this extinguisher. The large wheel at the top of the machine is a convenience in opening and closing it, at the same time serving as a base on which to rest it when reversed, as in use for playing on a fire. The frame work, or bottle holder, containing the supply of sulphuric acid, is cast brass and virtually indestructible. The bottle of standard size and type for holding the acid is obtainable anywhere in case of accidental fracture from any cause. The hose, tested to 400 lbs. to the square inch, cannot be pulled off and is only detachable with a wrench, being joined to the body by a swivel ground joint. The nozzle is said to be absolutely non-corrosive.

No mechanical force is needed to put the apparatus in action; it is simply turned bottom up and the resultant mixture of sulphuric acid in the three gallons of water charged with bicarbonate of soda develops instantly force enough to throw a chemical stream fifty feet. This stream acts as a blanket and smothers fire which water cannot reach. The manufacturers state that by means of a lead stopper, fitting loosely, the flow of sulphuric acid is regulated and just

the correct amount of gas generated at all times, making explosion impossible. As this extinguisher neutralizes the acid before it leaves the machine, the stream will not injure material with which it may come in contact.

The "Success" extinguisher is included in the list of approved chemical extinguishers issued by the National Board of Fire Underwriters.

A NEW ADAPTATION OF CORK INSERTS.

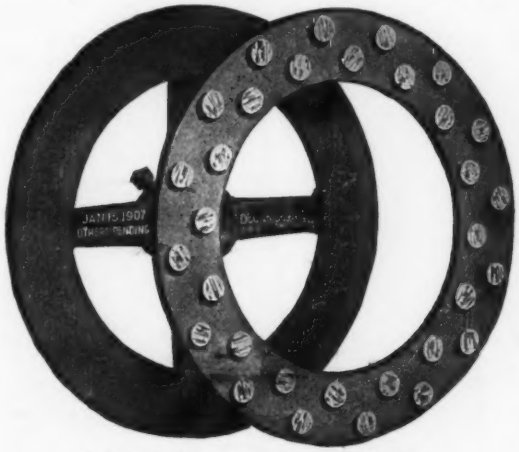
For some years builders and users of machinery on which power is transmitted by belt and pulley or by clutch have been aware of the value of cork as an aid to power transmission. In many of the largest woolen and cotton mills including mills of the American Woolen Co. and the Amoskeag Mfg. Company there are now in use thousands of looms, mules, spinning frames, pulleys (ranging in size from the small dynamo up to 80 by 24 inches) and line shafting clutches fitted with cork inserts.

A KNITTING MACHINE PULLEY.

The main objects of such installations are economy of power, lessened belt expense, longer life of machine bearings, uniform speed under all sorts of atmospheric and other conditions, increased output and improved product.

The "Ready to Use" cork insert rings are carried in stock and used to replace worn out leather facings with no increase in cost and with marked improvement in results. It is said that a loom friction once so equipped requires no further refacing, cleaning or adjustment.

Recently the National Brake & Clutch Co., Boston, owners of the cork insert system have brought out a cork insert pulley for knitting machines and the same beneficial results follow its application to knitting machinery which have attended the use of cork inserts in other lines. The corks may be inserted either in a fiber covering or directly into the iron pulley as desired.

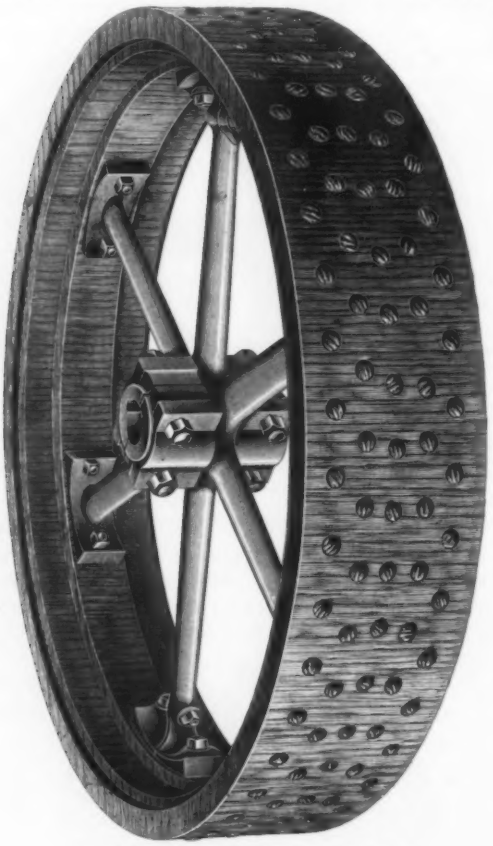


"READY-TO-USE" CORK INSERT RING.

DYNAMO OR HIGH-SPEED FIBER FACED CORK INSERT PULLEY.

Cork has a high co-efficient of friction, is impervious to oil, water, dust or other abraided particles, therefore in the operation of machines belt slip is eliminated and constant speed secured under all conditions. On damp mornings when with the usual type of pulley there is some difficulty in getting the room in good running order, the machines fitted with cork insert pulleys start up without trouble to the fixer.

Exhaustive tests of pulleys fitted with cork inserts at Harvard University, Worcester Polytechnic Institute and at the West Albany



CORK INSERT WOOD RIM PULLEY.

shops of the N. Y. Central R. R. bear out the claims of the owners that per horse power transmitted cork insert pulleys are the most economical pulley now manufactured as they increase power transmission from 50 to 100 per cent. over ordinary iron pulleys.

Large numbers of wood and iron pulleys fitted with cork inserts are in use with most satisfactory results—many of them in places where other pulleys have failed. One manufacturer states that after six years use during which a constantly increasing load had been given the pulley, the corks show little if any signs of wear, and the pulley which has received practically no attention during this time is giving perfect satisfaction.

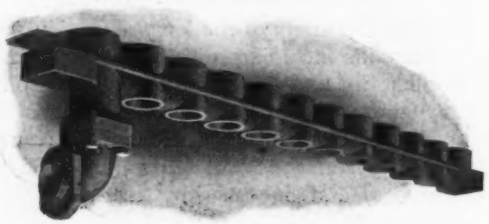
The National Brake & Clutch Co. will be glad to receive further information on the adaptability of their system to knitting machines or other power transmission problems anywhere in the mill.

ECONOMIZERS.

In the new design of the Sturtevant economizer, which is especially adapted to the requirements of the modern power house, special attention has been given to ease of making repairs, should repairs be necessary. The pipe of the economizer is made with a taper at each end, the taper at the upper end being

JOINT FOR THE STURTEVANT ECONOMIZER.

parallel with that of the lower end in order that the pipe may pass through the upper header and make a seat in both top and bottom header without moving either header.

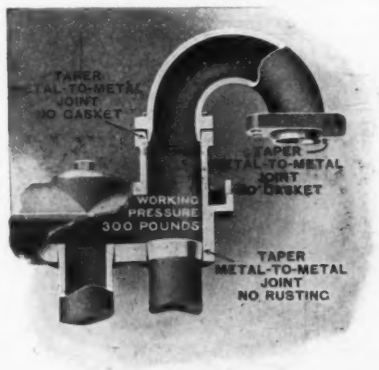


JOINT FOR THE STURTEVANT ECONOMIZER.

Those who have had occasion to repair an economizer will appreciate the Sturtevant metal-to-metal joint for the pipe can be removed without cutting a slot in the pipe, and there are no rust joints to be broken.

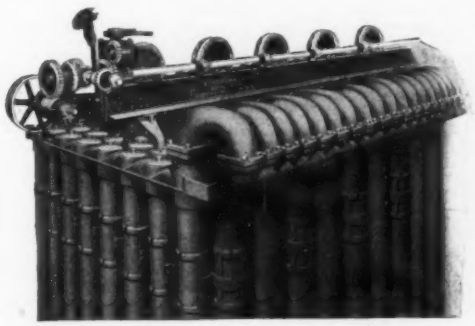
With most types of economizers, to remove a pipe at the bottom header requires disconnecting the entire section and breaking the joints which have been made with sal ammoniac and iron borings. With the Sturtevant metal-to-metal joint, which is used

throughout the economizer, no rust joints are necessary and not a gasket is used. In replacing a pipe the new pipe is exactly the same size and shape as the old one and is



easily driven to the same joint, whereas, with other types the repair pipe is smaller and made tight by rust joints

To help engineers remember that the Sturtevant economizer has metal-to-metal joints,



THE STURTEVANT ECONOMIZER.

the B. F. Sturtevant Company is distributing a bulletin No. 102 in which a design is used to symbolize this joint.

The exports of cotton, silk and woolen hosiery and gloves from Chemnitz, Germany, to the United States for the first three months of 1908 amounted to $38,855,547. In 1907 Germany exported cotton yarn to the value of $7,886,566 and cotton goods to the value of $89,015,570. In the same year the United States exported $294,012 of cotton yarn and $14,900,421 of cotton cloth.

THE NEW MASON DRAWING FRAME.

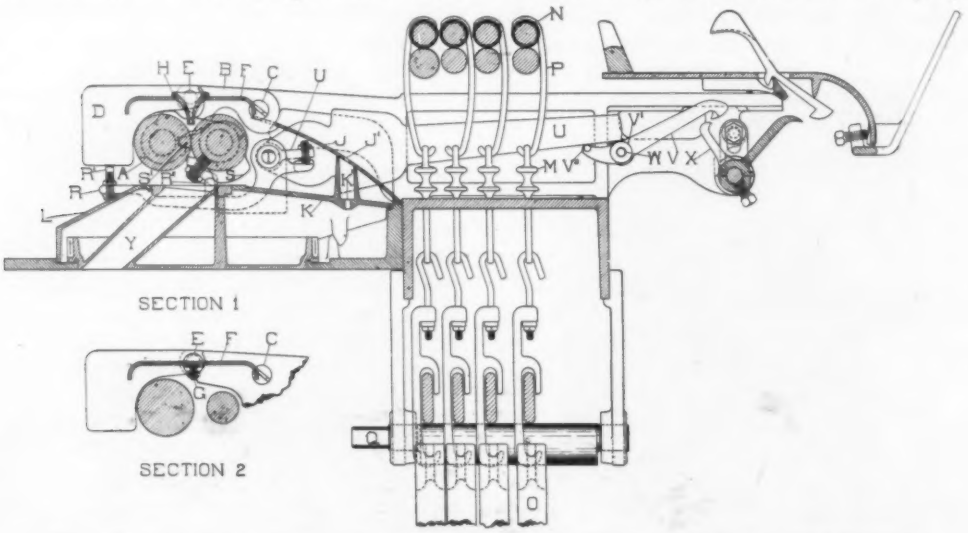
We illustrate in the accompanying halftones and section, some of the improvements recently embodied in drawing frames built by the Mason Machine Works, Taunton, Mass. Anyone familiar with the economical production of a well drawn, even and strong sliver, will, upon inspecting one of these machines, note that it is rigidly built with ample bearings, and up-to-date in all its details. The most conspicuous departure from the usual construction will be noticed in the arrangement of the calender rolls and trumpet by which all parts, in front of and underneath the drawing rolls, become readily accessible.

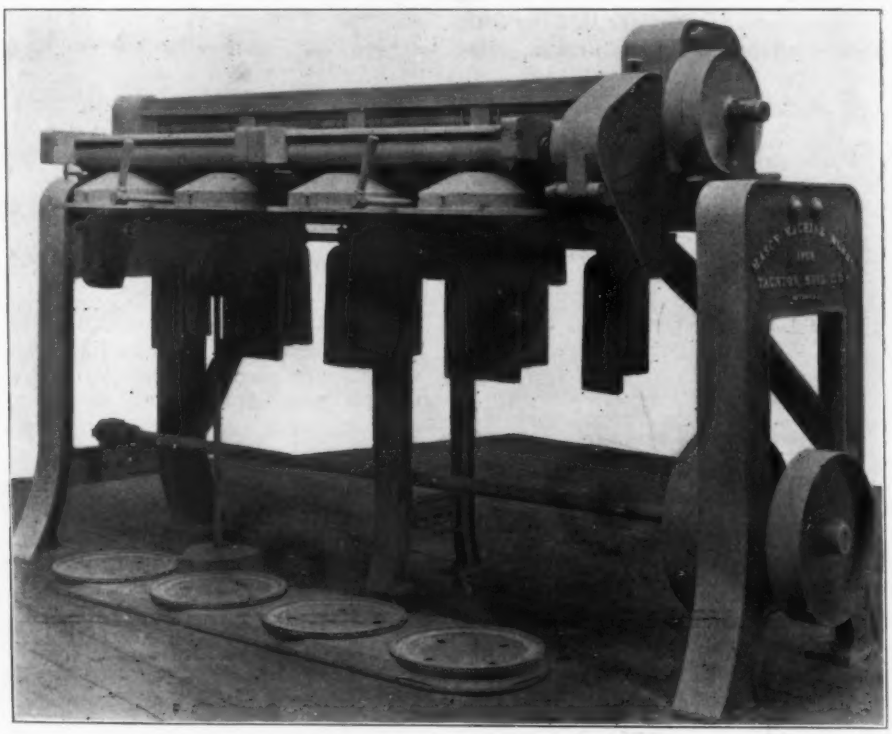
The calender rolls are 2 1/2 inches in diameter and the front one, A, extends through two sections of the 16-inch gauge, four or six delivery head. The front calender roll bearings, B, are hinged to the calender roll stand by means of the stud, C, instead of being forced against an inclined surface, as is the usual method. By eliminating the friction from sliding against the inclined surface, the weight of the calender roll itself is made more effective and constant in its pressure upon the swiftly passing sliver.

Additional pressure for perfectly condensing the sliver is provided in the weights, D, resting upon the bearings of the front calender roll. These weights, with the leverage as shown, are utilized in operating the front stop motion, and the studs, E, by which the weights are pivoted upon the calender roll stands, form an important part in locating the trumpet, as will be later described.

As the various kinds of cotton under different conditions require a suitable pressure of the calender rolls to obtain the best results, this new arrangement, which allows of obtaining any predetermined weight for the condensing of the sliver, will win favor over designs involving springs or unwieldy weights by which this end has previously been in a measure attained. The sheet metal cover, F, over the calender rolls has its back corners held by the slits shown in the studs, C, and supported directly over the bight of the calender rolls by the adjusting screw, G (see section 2), in studs, E.

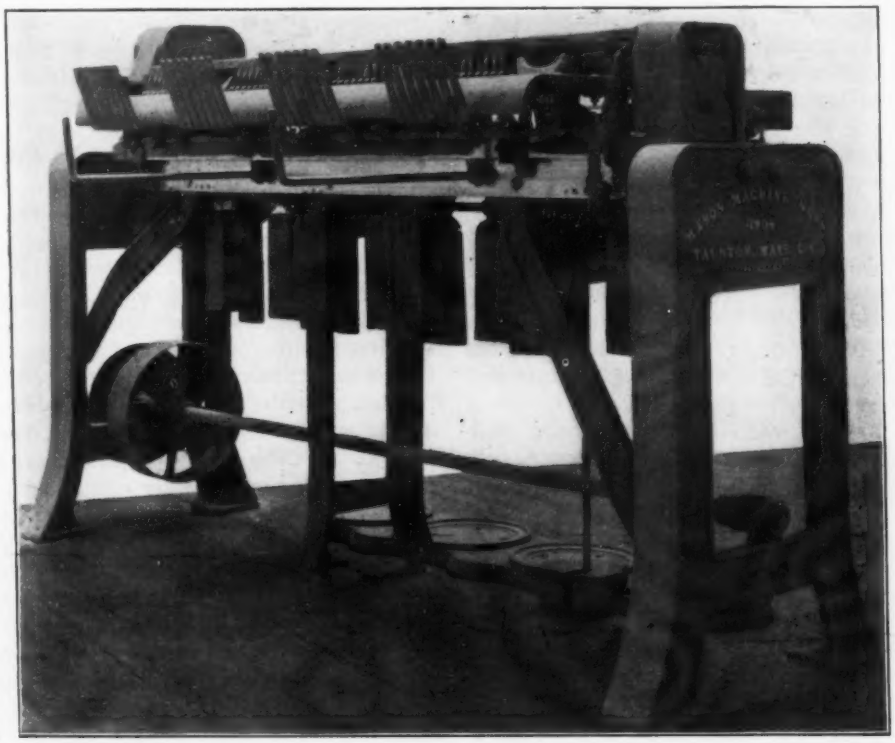
These studs prevent the displacement of the cover without its first being raised above them. The trumpet, H, is removably held by the cover, F, and is adjusted for the various lengths of staple by means of the screws, G. The stud, E, is flattened at the proper height to prevent any possibility of the calender rolls being marred by the trumpet in





THE NEW MASON DRAWING FRAME. FRONT VIEW.

consequence of too close a setting. The top casing, J, prevents the sliver, when being pieced up, from dropping out of reach, while by means of the openings, J′ and K′, the usual gears for driving the coiler are easily lubricated. All of these covers, K, L, J and F, with the weights, D, may be quickly removed and replaced without the use of any tools. By lifting and swinging back the manipulation of the cotton or any of the mechanism. This construction, together with the form of the roll weight links, M, allows the top rolls to be instantly released when occasion requires and to be easily replaced by the most ordinary help. In this connection it should be noted that the double hooks designed for relieving the weights from leather covered top rolls are of ample



THE NEW MASON DRAWING FRAME. REAR VIEW.

front calender roll, the gearing and other parts are completely exposed.

It will be observed, by examining section 1, that the sliver in passing from the front drawing roll to the trumpet is not liable to have its selvage frayed by contact with any projections, as the old style trumpet has been dispensed with and there is nothing to contribute to the failure of the sliver at this point. In fact this part of the machine presents a very neat appearance, there being no obstructions to prevent it being kept free from lint and seed or to interfere with the strength, separately adjustable and easily removed, but cannot become accidentally unhooked.

The machine, as represented in section, is as designed for leather top rolls, while the one shown in the photographs is adapted to the use of metallic top rolls.

An element of elasticity is introduced between the top rolls, N, and their weights, O, by the form of the stirrup, P, and by having this member spring tempered after it is bent to its proper shape. For example, a sudden strain, as by improperly releasing

the relieving motion, Q, is thereby modified.

The top rolls are provided with end bearings so designed as to retain the same strength at the trunions as heretofore, thus gaining the principal advantages afforded by shell rolls.

The draft and calender roll gearing is neatly arranged, being quite heavy, with wide, ample bearings and cut teeth, all carefully covered.

The intermediate gearing at the foot end may be lubricated without disturbing its cover and only two bolts need be loosened to disengage these gears and the crown gear stand for the removal of the steel rolls. Guides are provided for resetting these gears without trouble.

Mechanical stop motions are provided for this drawing frame, comprising the usual spoon and vibrator motion at the back and a combination motion in front, operated independently by the outer calender roll in case of failure of the sliver or any lapping or "bunging up," and by a slight lift of the tube gear when the can is full.

As already stated, the calender roll weights, D, rest upon the outer calender roll bearings; but, as will be observed by reference to section 1, the adjusting screw, R′, and the front lever, R, will be depressed in case less than the usual amount of sliver continues to pass between the rolls.

Should, however, either of the calender rolls lap up, or the sliver accumulate on the top of the coiler, the front calender roll would be raised considerably above its normal position. By means of the tooth shaped projection, S′, on the cam, S, being in mesh with the front calender roll bearing, B, the cam is rotated into contact with the arm, R^2, of the front lever, R, which will be depressed as before.

The usual calender roll clearer is always furnished, but is omitted from the section in order to show more clearly the new arrangement of the trumpet.

The front lever, R, is adjustable upon the back lever, U, and both being pivoted upon the stud, T, rest in their normal position when the extreme end of the back lever is supported by the hub, V′, of the hook, V. When in this position the back lever, U, holds the hook, V, above and out of reach of the vibrating arm, X, by means of the curved end, V^2, of the hook. But the hook, V, will arrest the movement of the vibrating arm, X, and instantly stop the machine whenever the front lever, R, is depressed, as before described. The front lever, R, is also depressed and the machine stopped in a similar manner by the usual finger located above the coiler gear, Y.

These new drawing frames have been running in different mills with various kinds of cotton and are giving excellent satisfaction.

COTTON MANUFACTURING IN CHINA.

The export of cotton goods to China fluctuates widely under many influences from year to year. In considering this market the question arises whether it will not eventually be supplied by the Chinese themselves. At present the superior efficiency of the higher priced foreign labor has won in competition with the cheap but unskilled Chinese operatives. The possibilities in the development of the native industry are always present and make the following report from Wilbur T. Gracey, the American consul at Tsington, of especial interest.

There are now 27 cotton-spinning power mills in China, to which may be added the mill in Hongkong, also engaged in turning out yarn for the China market. The mills originally started in Shanghai, which at present boasts of 12, had many obstacles to contend with at the start and for several years after, such as labor difficulties, cotton cornering and cotton watering. Losses were sustained, and in several cases capital had to be written down. The years 1903 and 1904 were the worst since 1900, but 1905 and 1906 were good average years; cotton was cheaper, and the mills were kept running night and day.

Chinese cotton is whiter than Indian, and the product of the Shanghai mill is superior in color and cleanness to either Japanese or Indian yarn, but being shorter in staple it is not so strong, nor is it so well reeled, owing to the low class of labor employed in this department, and I have been

informed by a mill manager that no amount of supervision can obtain what may be considered high-class work. Taking Chinese labor as a whole, however, it may be considered as good as either Japanese or Indian, and when the difference in the quality of the cotton is considered it is relatively as cheap. The number of spindles in these 28 mills is approximately 750,000, and the production per spindle, working day and night, is from 11 ounces to 13 ounces, according to counts, which are 10s, 12s, 14s and 16s. With 12 ounces as the average, these 750,000 spindles are capable of a daily output of 562,500 pounds. On the assumption that work is carried on 320 days of the year, the annual output would be 180,000,000 pounds of yarn, a quantity equal to more than half the foreign import.

The great bulk of it finds its way into the country round Shanghai, and becomes the warp of Chinese cloth woven on hand looms, which is exported in enormous quantities under the name of nankeens to northern China, but especially Manchuria, principally by junk. The block in Manchuria in 1904-5 reacted on Shanghai, where the stocks at the close of 1906 amounted to 27,666,000 pounds, against 2,665,600 pounds in 1903, 6,873,970 pounds in 1904, and 5,804,433 pounds in 1905.

Were we to assume that all the foreign yarn imported into China, as well as the product of the mills in China and Hongkong, is manufactured into cloth with native-spun weft—which is not the case—the weight of the latter might approximately be estimated at 518,829,600 pounds, or 231,620 tons, and if to this be added the export from China in 1906 of 769,542 piculs (picul = 133 1/3 pounds), or 45,806 tons, and the large but unknown quantity used for wadding, it is not unlikely that the production of cotton in China would approximate if not exceed the estimate of 300,000 tons mentioned in my report for 1905. There was an import of raw cotton into China in 1906 of 6,047,600 pounds against 12,078,667 pounds in 1905.

The province of Szechuan, which is not well suited by soil for the cultivation of cotton, and produces only a limited quantity, is the greatest consumer of imported yarn. It took 51,555,867 pounds in addition to 36,844,533 pounds of raw cotton from the central provinces. The latter quantity, although mentioned by the commissioner of customs at Ichang in his report, does not appear in the customs returns; it passed through Ichang by junk.

Although the great bulk of imported yarn is made into cloth with home-grown cotton, a certain but measureless quantity is manufactured solely from foreign twist. I visited several establishments at Shanghai where British and Japanese yarns were being used as warp and weft in the weaving of colored fancy-patterned cloth. The yarn was dyed on the premises, and at the time of my visit natural indigo and synthetic reds were being employed.

In one of these factories there were 80 hand looms of Japanese pattern, and it was interesting to watch the women at the looms. There was no idling to look at the foreign intruder, for they were engaged on piecework at the rate of 7 cash per foot. A woman could turn out 40 Chinese feet of cloth per day of twelve hours, the length of a piece being 50 Chinese feet, with a width of 27 inches, and the Chinese manager told me that on occasions a whole piece might be woven in a day, but that it was an exception. Men were employed to arrange and fix the warps on the looms.

During the early part of 1907 the highest price ever received for New England flax was recorded, $185 per ton. At present the price is $107 per ton.

France produces between 1,100,000 to 1,240,000 pounds of artificial silk. The cost of production varies, according to the process employed, from $1.93 to $2.90 per kilo (2.2 pounds).

The total value of textile goods exported from Plauen to the United States during the three months ended March, 1908, amounted to $773,973, which was $542,688 worth less than the value of the goods shipped during the corresponding period of 1907. The only exports from Plauen showing increases are machine-made artificial silk lace and cambric embroideries.

Dyeing, Bleaching, Printing, Etc.

EFFECT OF TEMPERATURE AND DILUTION OF DYE BATH IN DYEING WOOLEN YARN.

BY ELMER C. BERTOLET,
Winner of the Textile World Gold Medal, Philadelphia Textile School.

(Continued from July.)

Dilution of the Bath. The dilution of the dye bath in dyeing the Alizarins does not affect the color, except for a small loss in depth, even at twice the dilution of the bath. The brown lost the yellow shade and became redder. At three times dilution the colors become still lighter and duller in appearance and at five times the dilution the brown loses its yellow and shows up very blue. The yellow also becomes duller, while the red, blue and green becomes brighter. In dyeing mixtures of these dyes, although the colors in combination dye much the same as above, they go on very unevenly, probably due to the different degrees of exhaustion of the dyes used.

The After Chrome Dyes. Under this class will be the Anthracene and the Acid Alizarin colors. The Anthracene Chrome, Diamond and Chromotrop dyes will not be touched upon.

In dyeing the Anthracene colors, the usual method is to exhaust the baths of all color and then to after chrome in the same bath. Some of the dyes must be used on a chrome mordant. If the dye bath is not well exhausted, a fresh bath is necessary for after-chroming and the amount of chrome used is usually one-third as much as dyestuff used. The dyes are applied in neutral or slightly acid baths, and when nearly exhausted acetic acid is added. The after chroming requires 20 to 30 minutes and causes considerable change in the tone of the color, which makes it difficult to match-off a sample. The addition of Glauber's salt gives even dyeings. The chrome in this case acts as an oxidizing agent and the color unites with the chromic acid (Cr_2O_3). The Anthracene dyes are not very soluble in water as a rule. The Anthracene Yellow used separates in the bath.

Temperature of Dye Bath with Anthracene Colors. The dye bath is made up of 150 c.c. water, 3/4 per cent. of the following colors, 2 per cent. sulphuric acid. Skeins weighing 37 1/2 grains were used and the temperatures were the same as under the acid colors. The colors experimented with were:

Anthracene Brown (A. & D.), Anthracene Blue C (Cass), Anthracene Black (Cass), Anthracene Red (K. & P.), Anthracene Yellow C (Cass).

The skeins were dyed and then after-chromed in one bath with one-half per cent. chrome for 15 minutes. In comparing the depth of shade obtained at the different temperatures with the Alizarin dyes, I found they were almost the same. At 120° F. the baths were not nearly exhausted, nor were they in the cold, the yellow giving the heaviest shade. At 180° F. the exhaustion was fairly fast, the yellow exhausting in 15 minutes. At the boil all baths except the blue were almost colorless. From this it is seen that the exhaustion is also about equal to the Alizarin dyes. The colors were also dyed on a chrome mordant. In the case of the brown, red and yellow, brighter although lighter shades were obtained, while with the black and the blue the tone is thrown too much to the red and the after-chromed color seemed best. The whole series of samples came up uneven, although some were even at 120° F. This can be due to the dyeing and to the after-chroming.

Dilution of the Bath. The only effect of twice the dilution of the bath is to lighten the shade. The yellow, red and black exhausted nearly as good as when the usual amount of water was used. Even at three times dilution no great difference was noted in the appearance of the dyed samples.

The Acid Alizarin Colors. These are sulphonated Alizarin dyes which have acid properties and combine with the wool fiber directly. They can also be after-chromed or dyed on a mordant of chrome and are, there-

fore, valuable for use in conjunction with other mordant colors for brightening up dark shades because of their brilliancy and purity of tone. They are dyed in the same manner as acid dyes, in a bath of Glauber's salt and sulphuric acid. The best temperature for starting the dyeing is in the cold. The colors were dyed with 10 per cent. Glauber's salt, 2 per cent. sulphuric acid and 3/4 per cent. of dyestuff at the different temperatures for one-half hour. Samples were then withdrawn and the skein after-treated in the same bath and at the same temperature. The colors used were:

Acid Alizarin Yellow O (Metz), Acid Alizarin Red B (Metz), Acid Alizarin Blue B B (Metz).

These dyes exhaust slower than the acid dyes and about the same as the Alizarin dyes. The shade obtained in the cold is fair and especially with the yellow. At 120° F. the shade is about one-half of its maximum depth for 3/4 per cent. of dyestuff. The shade obtained at 180° F. is only a very little lighter than that resulting at the boil. When after-treated with chrome, and this is necessary in the case of blue, the colors become deeper in color but do not alter their tone, excepting the blue. The blue when dyed direct is a bluish red which on after-treatment turns to a very good blue. When after-treated at temperatures below the boil, a redder blue is obtained. When dyed on a chrome mordant the color is about as heavy as when after-treated and in the case of the red and yellow it is duller, while with the blue the color is poorly developed and is very red.

Dilution of the Bath. In dyeing these colors direct, the exhaustion from dilute baths is slower, but for two dilutions scarcely any difference in depth is noticed, and the dyeing in three dilutions is only a trifle lighter. In the after-chromed samples, however, it is seen that the dilution interferes with the chrome doing its work and gives shades that are much lighter than those obtained with the usual amount of water. That this is a fact is shown by the blue getting redder as the amount of dilution goes up. The exhaustion is also slower when the bath is diluted.

In the experimental work the basic and substantive dyes were not touched upon. The basic dyes are quite extensively used for the production of bright colors where no great fastness is required. The substantive dyes are not very largely used in the dyeing of wool. The basic dyes are applied directly to the wool fiber in an acetic acid bath. They exhaust good at low temperatures and at 180° F. the shade is as heavy as that obtained at the boil. At the boil the colors are dull in appearance, due to the decomposition of the dyestuff and the dyeing must, therefore, be carried out around 180° F. when the colors dye their brightest shade. In the case of Auramine the temperature should not exceed 170° F.

In all cases it is seen that the temperature has more to do with the dyeing than the dilution. The temperature of starting is an important point and if too high the colors go on the fiber unevenly. By this work it is proven that to get the best results all colors when applied to the wool fiber should be started cold or not above 120° F. When dyeing two or three colors together it is essential that the colors chosen should have about the same degree of exhaustion, or unevenness is almost certain to take place. This is also very liable to happen if color is added to the boiling bath in toning up a shade. In all cases it is recommended to first cool the bath, as the exhaustion of the majority of wool colors is very rapid at the boil. At 180° F. all the colors seemed to be only slightly lighter in depth, although the shade at the boil was a trifle brighter.

The dilution of the bath as far as twice the dilution is not very marked, only a slight difference in depth being noted. Twice the dilution is nearly the limit when dyeing on a practical scale, while a dilution of three or five times is very seldom reached. In dyeing combination of colors, the effect is more easily seen, as some of the colors hold off and the tone changes as the dilution becomes greater. At five times dilution the colors, as a rule, become lighter and duller, but as this dilution is seldom used, it is of no great importance.

ESTIMATING THE DEGREE OF MERCERIZATION IN COTTON YARNS.

BY PROF. EDMUND KNECHT.

(A lecture before the Society of Dyers and Colorists.)

Various methods have been proposed from time to time for ascertaining whether a sample of cotton has been mercerized or not, but none of these have hitherto given entire satisfaction. At the present time most reliance appears to be placed (at least in the case of Aniline Blacks) on the microscopical examination of the fiber. This is, however, not so simple a matter as it might appear to be at first sight, for even in well mercerized materials a certain proportion of the fibers appear to escape the action of the caustic soda, or to behave abnormally, so that it is necessary to examine a number of fibers individually before an opinion can be formed.

The iodine method, which is otherwise very satisfactory, fails to discriminate between cottons mercerized with comparatively weak lyes on the one hand and very strong lyes on the other.

One of the most characteristic changes which mercerizing brings about in the properties of the cotton fiber is, as is well known, the vastly increased affinity for coloring matters. This property would naturally suggest itself as the most convenient means of ascertaining to what extent a sample of cotton had been mercerized, the result being arrived at by means of comparative dye trials. Schaposchinkoff and Minajeff have recorded a number of quantitative estimations of the amounts of various coloring matters required to produce the same shade on ordinary and on mercerized cotton, and came to the conclusion that mercerized cotton requires 20 to 50 per cent. less color than ordinary cotton. Their experiments were, however, carried out on cotton which had been mercerized without tension, and this fact detracts considerably from the practical value of their results, since mercerizing (in the true sense) is not at present carried out unless under tension, and, as is well known, the affinity for coloring matters is under these conditions considerably less than when the treatment has been conducted without tension. The estimation of the degree of mercerization by means of comparative dye trials in separate baths is rendered difficult by the fact that mercerized cotton exhausts the bath much better than ordinary cotton. A colorimetic examination of the liquors to determine the amounts of color left in solution is open to several objections.

A much more striking contrast between mercerized and ordinary cotton is obtained by utilizing the selective affinity of the two materials for coloring matter in one and the same bath. In a series of experiments which I conducted some years ago on this behavior, some very interesting results were revealed by dyeing in one bath, skeins of the following:

(1) Ordinary cotton yarn, not treated.
(2) " " mercerized with KOH at 50° Tw.
(3) " " " " NaOH " 50° "
(4) " " " " HNO_3 " 83° "

Dyed with such coloring matters as Diamine Green, Chrysophenine, Benzopurpurin 4 B, Eclipse Blue, etc., the skeins showed a remarkable divergence in their selective affinities. The shades obtained on those treated with caustic potash were about twice as deep, those treated with caustic soda four times as deep, and those treated with nitric acid about eight times as deep as on ordinary cotton. These are, of course, only rough estimates, and can have no claim to accuracy.

In 1904 I described in a paper read before this society a method by means of which the amount of an azo dye taken up by cotton could be quantitatively estimated in the fiber by indirect titration. By making use of this method I have now succeeded in applying the selective affinity not only for ascertaining whether a sample of cotton yarn is mercerized or not, but further for determining the degree of strength of the caustic soda which has been used in the process, providing the process has been conducted at the ordinary temperature.

The method of working adopted was to determine first experimentally the relative amounts of color taken up by ordinary cotton and cotton mercerized with different strengths (10°-70° Tw. at intervals of 5° Tw.) of caustic soda on being dyed for one hour

at the boil in a bath containing excess of the dyestuff.

Practically any direct azo dye may serve for the purpose providing it is not a mixture, but for my experiments I preferred to use the sodium salt of pure Benzopurpurin 4 B. The amount of color used for dyeing was generally 4 per cent. on the total weight of the skeins and the amount of water 20 times that of the weight of the cotton, the usual additions of soda and Glauber's salt being made to the bath.

In the first quantitative experiment it was sought to determine the selective affinities for Benzopurpurin 4 B of ordinary bleached cotton, cotton mercerized with caustic soda and cotton mercerized with nitric acid.

To this end 75 grain skeins of the various materials were dyed for an hour with 3 per cent. Benzopurpurin 4 B, 5 per cent. soda and 10 per cent. salt, the amount of liquor being 20 times the weight of the yarn. The results are given in the following table:

TABLE 1.

Material dyed	% Color taken up
Ordinary cotton	0.69
Mercerized NaOH 60° Tw.	2.78
Mercerized HNO_3 85° Tw.	5.23

Since color equal to 9 per cent. of weight of one skein was used in the dye bath, it will be seen that the bath was almost exhausted. In the case of the cotton mercerized with nitric acid, a blank was carried out, as I had previously found that a certain amount of the acid combines with the cotton in mercerizing. The amount found by titrating the blank with $TiCl_3$ (which was not large) was deducted from that obtained in estimating the color. It is interesting to note that these figures practically bear out the rough estimates which I had made in my first experiments on selective action, i. e., the caustic soda mercerized cotton took up 2.78 per cent. in place of 2.76, and that mercerized with nitric acid 5.23 instead of 5.52, which figures represent respectively four and eight times the quantity taken up by ordinary cotton. The experiment was repeated with ordinary cotton, cotton mercerized without tension with nitric acid, and with caustic soda of different strengths. The results bear out those in the table, but beyond this are not of any further interest. The most remarkable point in connection with these trials is the enormous affinity for direct and other colors evinced by cotton mercerized with nitric acid, which now receives quantitative corroboration.

A large number of quantitative experiments were carried out in order to ascertain the relative selective affinities of cotton in the ordinary condition and cottons mercerized with and without tension with varying strengths of caustic soda, the dyeing being effected in separate baths and in one and the same bath, but of all these it is sufficient for the present purpose to record the results obtained by dyeing in a single bath, in which case slight alterations in the degree of concentration are not of much moment, since all the samples are exposed to identical conditions. The following table shows the selective affinities of ordinary cotton, cotton mercerized under tension, and cotton mercerized without tension (both bleached and grey), for Benzopurpurin 4 B:

TABLE 2.

Showing selective affinities of ordinary cotton and cotton mercerized with and without tension for Benzopurpurin 4 B.

	Material	Strength of NaOH	% color taken up
Unbleach'd	Untreated		1.55
	Mercerized with tension	50° Tw.	2.90
	Mercerized without tension	" "	3.39
Bleach'd	Untreated		1.50
	Mercerized with tension	50° Tw.	2.86
	Mercerized without tension	" "	3.54

The material used for the experiments was a two-fold Egyptian yarn (grey), of which skeins were carefully mercerized under tension after wetting out with boiling water. For the dyeing, skeins of 38 grains each were used. The dye bath was made up with 3 per cent. Benzopurpurin 4 B, 5 per cent. soda, and 10 per cent. salt, the water amounting to 20 times the weight of the cotton. The results are given in the following table:

TABLE 3.

Showing amounts of Benzopurpurin 4 B taken up from the same bath by ordinary cotton and cotton mercerized stretched, in different strengths of caustic soda.

Yarn	% Benzopurpurin in fiber. I.	II.	Average %
Ordinary	1.76	1.77	1.77
Mercerized 10 Tw.....	1.86	1.90	1.88
" 20 "	2.37	2.40	2.39
" 25 "	2 56	2.57	2.57
" 30 "	2.94	2.95	2.95
" 35 "	3.03	3.01	3.02
" 40 "	3.10	3.19	3.15
" 45 "	3.26	3.28	3.27
" 50 "	3.32	3.44	3.38
" 55 "	3.50	3.50	3.50
" 60 "	3.55	3.56	3.56
" 65 "	3.59	3.60	3.60
" 70 "	3.61	3.70	3.66

In these, and in all other cases, the estimation of the color in the dyed yarn was carried out as described in my previous paper, already alluded to. On emerging from the dye bath, the various skeins were all squeezed, lightly rinsed in water, and laid on a piece of dry, clean flannel. Each skein was then in turn transferred to a conical 300 c. c. flask, into which a current of CO_2 was passed. Dilute hydrochloric acid was added, then a known volume of standard $TiCl_3$ (in excess), and after boiling until the whole of the color had been destroyed the contents of the flask were cooled and the excess of titanous chloride titrated back with standard iron alum, using potassium sulphocyanide as indicator. The calculations are done in the usual way; examples are given in my previous papers.

It will be seen from the results given in the table that the affinity of the cotton for coloring matter rises continuously from that which has undergone no treatment to that which has been mercerized with caustic soda of 70° Tw. Between these there is a difference of 1.77 to 3.70, which, however, is not evenly distributed. In any case, however, there is a steady and continuous rise, and this was also noticed in the cottons mercerized without tension.

In applying the method which I now venture to bring before you for determining the strength of caustic soda which has been used for mercerizing a given sample of cotton yarn (grey or bleached), a known weight of the sample is dyed along with a known weight of ordinary cotton of about the same quality, under the same conditions as those given for the table in one bath. The color is then estimated quantitatively in both samples, but the figures thus obtained are not directly comparable with those of the table unless the ordinary cotton has taken up exactly 1.77 per cent. of color. If it has taken up less, then the mercerized sample will have taken up less in the same proportion, and vice versa if it has taken up more.

It was, of course, necessary to ascertain before any further work could be proceeded with whether different qualities of ordinary cotton absorb exactly or nearly the same amount of color when dyed together in one bath. Although a slight divergence in this respect was noticed in some cases, it was not sufficient to materially affect the usefulness of our method. The following table gives the results obtained:

TABLE 4.

Showing amounts of Benzopurpurin 4 B taken up by different qualities of cotton when dyed in a single bath.

	A.	B.	C.
Bleached twofold	1.46	1.39	1.59
Grey single.....	1.33	1.41	1.50
Grey twofold....	1.43	1.42	1.54
Calico bleached..	1.47	1.46	1.58

A further point which had to be taken into consideration was the time employed in mercerizing. In our experiments this amounted to about three minutes, which may be taken as an average time for mercerizing in the hank. Since, however, the time given in piece mercerizing is considerably less, this fact was taken into consideration in the experiments. The material experimented upon was well bleached cotton yarn, and the strength of the caustic soda was 50° Tw. After steeping for the time stated (the purity of the material was such that it instantly wetted out on immersion in the caustic soda) the weighed skein was instantly plunged into a large excess of diluted sulphuric acid, and was then well washed.

TABLE 5.

Showing influence of time on the mercerizing action of caustic soda of 50° Tw.

Time	Shrinkage	Benzopurpurin taken up
5 seconds	15.7%	3.24%
10 "	17.4%	3.62%
20 "	25.0%	3.80%
40 "	25.0%	3.89%
60 "	25.0%	3.91%
180 "	27.4%	4.10%

From the experimental data thus ascer-

tained it is evident that the reaction is very rapid. Within the limits of actual working there is not very much difference in the degree of mercerization, at all events as far as dyeing capacity is concerned.

Having thus ascertained that neither the quality of the cotton nor (within reasonable limits) the time employed in mercerizing had any material (considerable) influence on the color absorbing power of the treated sample, we proceeded to test the method with various samples of yarn which had been mercerized in the laboratory and in the works, and were successful in estimating in every case the strength of caustic soda that had been used for mercerizing.

TABLE 6.

Showing results obtained by applying the method to yarns mercerized under tension.

	Benzopurpurin taken up	Calc.	°Tw. calc.
I.—Grey Egyptian 2-fold	1.65%	—	—
" " merc. 35° Tw.	2.83%	2.80	35.3
" " " 52° "	3.17%	3.23	49.0
II.—Bleached 2-fold	1.11%	—	—
" merc. 20° Tw.	1.47%	1.50	19.8
" " 60° "	2.19%	2.21	58.9
III.—Grey 2-fold	1.54%	—	—
" merc. 47° Tw.	2.86%	3.29	45.0
IV.—Bleached 2-fold	1.50%	—	—
" merc. 50° Tw.	2.86%	2.91	49.1
V.—Grey 2-fold	1.55%	—	—
" merc. 50° Tw.	2.90%	3.01	48.0

In none of these cases was refrigeration used in mercerizing, and it is not to be expected that the table given above will hold good for yarns which have been mercerized at low temperatures.

Up to the present only a few experiments have been conducted on cotton mercerized in the piece, but I regret to say that the results have been anything but encouraging, having come out much too low. I am, however, inclined to think that this is not due to any fault in the method, but to imperfect mercerizing due in the main to the great speed at which the process is usually carried out, which in the case of unbleached cotton does not permit of the fibers being acted upon to the full extent. It will thus be evident that the time experiments given in Table No. 5 cannot apply to the mercerizing of grey pieces on a large scale. I am, however, pursuing the matter further by examination of warp and weft separately and of cotton pieces which have been batched in caustic soda before passing on to the stretching frame, and in case I am able to arrive at a satisfactory explanation, shall communicate my results at a future date.

A DYE HOUSE FOR A WORSTED MILL.

BY BRADFORD.

[The following article was written by an English dyer of long experience in response to an inquiry for particulars regarding a dye house adapted for the product of a worsted mill coloring slubbing, yarn and pieces.—Ed.]

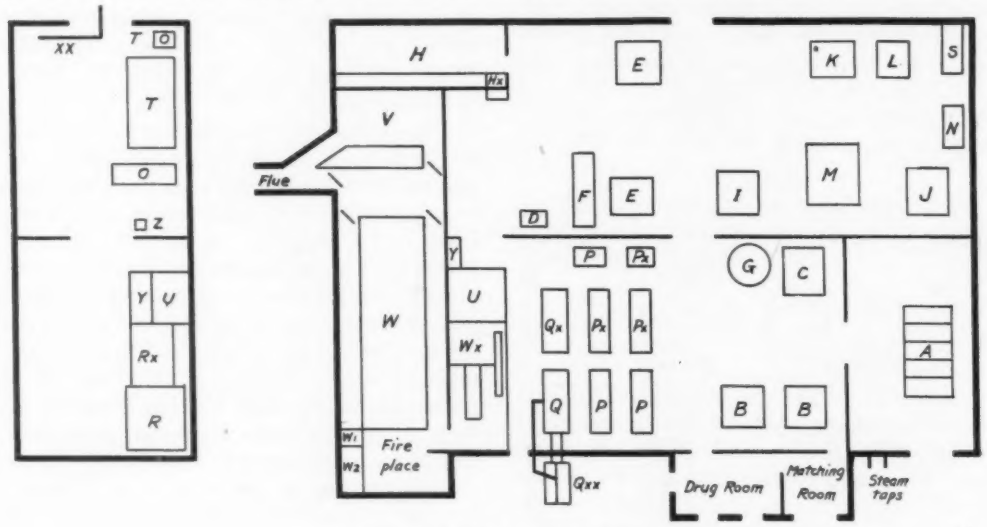
The equipment of a dye house for a worsted mill depends on the class of stock used and the finish of cloth. The machinery must be proportioned to the output of the mill. Each loom may be turning off a piece in 1 1/2 days if light-picked dress or costume cloth is manufactured. If middling, heavily picked suitings are produced, the output may not be over a third as great. The amount of machinery provided for in the plan should suffice to follow four sets of drawing and from 60 to 80 looms. The dyeing machine, if used for slubbing, will be sufficient for two sets of drawing frames, one set of gill boxes, one Noble comb and about 40 looms, and the piece dyeing machines will be sufficient for 40 looms more. If white goods are made an additional dolly washer for scouring, a padding machine for tinting, a jigger for peroxide bleaching and a wooden sulphur stove would be needed. It would be desirable to isolate the sulphur stove, as the fumes are apt to cause stains.

The dimensions of dyeing and finishing works shown are 90 by 50 ft., with a second floor, 24 by 60 ft., over the boiler. The second story, 10 ft. high, is designed for reeling and drying slubbing and yarn and to carry a reserve tank for the hot water system. The matching place and warehouse for dye wares and stores are top lighted and are 9 by 24 ft. and 9 ft. high.

The roof should be half glazed with bonnets over the dye pans and crabbing machine, the walls being carried up 20 ft. to make the roof the same height over all. A steel boiler, 7 ft., 6 in., by 30 ft., having an

economizer with 64 pipes for boiler feed and 64 pipes for hot water are provided. For the hot water there should be a wooden reserve tank holding 2,400 gallons (10 tons water) with a small tank for ball tap feed, placed over the economizer on the second floor. The water circulates from economizer to tank, the service to the works being taken from a pipe coming from the economizer and returning to the pipe leading back to the machine 1-in. pipe. The hot water pipes from the economizer should have a 3-in. service with return for circulation, supplying the crab, the dolly, all dyeing vessels and the scouring machine.

The following is the equipment specified in the plan: One triple crabbing machine, A; two piece dyeing winch machines, B; one dolly washer, C; one iron soap tank, D; two open width scouring machines, E; one set of



A DYEHOUSE FOR A WORSTED MILL.

economizer. This hot water service is useful in saving direct steam and time in boiling up.

A horizontal engine of 20 to 30 h. p. will suffice for the main plant and a rope drive from the engine to parallel shafts is recommended. The use of small auxiliary engines is to be condemned unless they afford some special convenience. A small engine to pump into the boiler is needed. An engine for the tentering machine is of use in arranging different speeds and in permitting overtime work in the finishing department. An engine and pump also may be used in conjunction with the hydraulic press. The boiler should be run at 80 to 100 lbs. pressure. High pressure steam is wanted for the engine and steam is to be delivered to the machines through a 6-in. pipe with a valve which reduces the pressure to 40 lbs. The dye pans need 2-in. pipes and the crabbing stocks, F; one hydro extractor, G; one hot air tentering machine, H; one cropping machine, I; one damping machine, J; one rigging machine, K; one folding machine, L; one rotary press, M; one hydraulic press, N; one reeling machine for slubbing, O; three dye vats for yarn or slubbing, P; three dye frames, PX; one yarn or slubbing dyeing machine, Q; one drying machine, R, for yarn and slubbing; engine and pump for hydraulic press, S; two tanks for hot water, T; hoist to first floor, U; economizer pipes, V; boiler, W; doors, X; stairway, Y; reserve tank for dyeing machine, Qxx; drop hole for reel slubbing, Z; main engine, Wx; small engine pumping to boiler, W1; tank to supply W1, W2; crane for bags of tops, xx; engine for tentering machine, Hx; frames for drying stove, Rx. Wheel trucks are needed for carrying material from one process to an-

other; a serviceable size is 2 ft., 9 in., by 5 ft., 6 in., by 2 ft. deep.

The yarn and slubbing vats and dyeing machine require sticks, also wooden frames in which the yarn can be placed before and after dyeing. These should be on wheels so that the frames can be drawn up to the side of the pan. The crab house will require perforated cylinders and one or two steam taps so arranged that the cylinders can be placed horizontally or vertically for steaming; also a wooden frame to hold the steamed rolls and a wheel cart to carry the rolls about. The crabbing machine is used to prevent the cloth from becoming wrinkled. It imparts a permanent and indestructible luster and finish which are not affected by any subsequent operation. The cloth is first wound on to a roller and then passed in a state of tension to the first bottom roller under pressure. The first trough of the machine is filled with boiling water or soap solution. The process is repeated in the second trough and again in a third trough in which the water is cold. The stretching of the cloth and the weight put on the rollers depends on the quality of the material and the kind of finish required. Soft finished stuffs require no pressure, whereas for hard finishes great pressure and weights are imperative. Steaming is usually considered a part of the crabbing process. The pieces are unwrapped from the last crabbing roller and wound tightly on a perforated iron cylinder. Steam is admitted through the axis of the cylinder for about ten minutes or until it passes freely through the cloth.

The dolly washer is used for washing after dyeing and also for scouring in the finishing process. The pieces are stitched end to end and run continuously between two heavy wooden squeezing rollers placed over a trough containing the necessary scouring solution. The wide scouring machine is much better for scouring than the dolly as the work is more evenly done and creases and crimps are avoided. The piece is kept at width by straining bars and is passed through squeezing rollers and run in a trough below the rollers which contains soap. The falling stocks are the most adaptable machine for milling, the ordinary milling machine being suitable chiefly for light weights. The stocks consist of a wooden box, in which the piece is placed, and two heavy wooden hammers, which are alternately raised by a tappet wheel and let fall on the piece in such a manner that its position is constantly changed.

Vats are convenient for either yarn or slubbing in hank. They should be rectangular, about a yard wide and of a length and depth suitable for different quantities of material. The small vat should take from 30 to 60 lbs., according to the quality of the wool. Of course merinos take much more room than coarse wool. The large vats may be made to handle from 90 to 150 lbs. The water should be heated by means of a perforated copper steam pipe, running along the bottom. A false bottom may be introduced to protect the yarn from the steam. The hanks are suspended in rows on smooth sticks laid across the tub. The hanks are turned by means of a rod placed immediately beneath the stick. The whole stick full is turned a quarter around, so that after two turns the part of the hank that was at the bottom is at the top.

The yarn or pieces must be packed evenly in the hydro-extractor so that the basket is properly balanced and the water is expelled quickly. The liquor in the piece dyeing machine, which is made of 4-in. wooden planks, is heated by a perforated copper pipe entering at one end and running along the whole length of the vessel. A perforated wooden division serves to keep the pieces from coming into contact with the steam pipe and can be used when adding additional dyestuff.

The world's cotton production for 1907 is covered in statistics by the Census Bureau. The output in bales of 500 pounds each was 16,512,185 in 1907, compared with 19,942,000 for 1906, with 15,747,000 for 1905, and 18,803,000 for 1904, the United States exporting 10,882,385.

Shipments of cotton cloth to the United States from England during the year 1906 were valued at $11,080,750 and measured 78,734,900 yards.

REMOVING FOG FROM DYE HOUSES.

REPORT OF AN INVESTIGATION OF FRENCH DYE HOUSES.

[This investigation was made by two French engineers, Turin and Lassaux, under the direction of the Association of French Dyeing Industries (Union des Industries Francaises de la Teinture). Many dye works were visited in the course of the enquiry, which is of value to the American trade because the principles underlying the removal of fog are the same everywhere, although the problem may be affected by different local conditions.—Ed.]

THE CAUSE OF FOG.

We will first outline the theory of fog formation and the various causes for its persistence. When a dye bath is brought to a temperature of 212° F., steam is thrown off and absorbed by the surrounding air until the point of saturation is reached. This point of saturation is raised by an increase in the temperature of the air. The warm air saturated with steam rises and comes in contact with layers of cooler air at the top of the room. The resulting fall in the temperature causes formation of fog which, being heavier than the air, sinks nearer to the floor. The colder the air the denser will be the fog. From this explanation it is evident that the fog will be less dense in the vicinity of a warm room or a steam boiler, or in a dry room where the temperature is higher than in the dye house. Consequently the fog is formed in two ways; continuously over the tubs and drying machines and intermittently by the introduction of cold air into the room. It is possible to remove the fog completely by heating the air of the room so as to bring the moisture below the point of saturation. This method is not to be recommended. Although the fog is made invisible, it is not removed, the air being hot and damp, conditions that are injurious to the health of the operatives and sometimes unbearable. Such a remedy would be worse than the disease, as the ordinary fog in dye houses has no injurious effect on the workers. During this investigation not a single complaint from the operatives came to our ears. Among them were some very old people, sons and grandsons of dyers, who had worked at the trade all their lives and enjoyed the best of health. If the fog in dye houses has an injurious effect on the operatives this fact would unquestionably have been indicated by these old workmen.

The fog is most likely to be caused by dye vats, kettles and drying machines; these are located in the dye house, scouring, printing and finishing rooms. In many work rooms not only must the fog be removed but the condensation must be prevented. This point we will discuss later.

CONDITIONS AFFECTING THE PROBLEM OF REMOVING FOG.

The reader will agree that it would be presumptuous to give directions for removing fog from work-rooms regardless of the varying conditions encountered in practice. On the contrary the problem is exceedingly difficult, involving as it does the following leading questions:

1. The kind of material being manufactured and the conditions of the work.
2. The style of the building.
3. The fog removing apparatus that is available.
4. The financial condition of the mill owners.

We will first consider the various materials that are being manipulated and the methods of working. Piece dyeing, especially when fancy colors are produced, demands cleanliness, which makes it necessary to avoid all dust and dripping water. This is especially the case with silk on account of its very high price. Accordingly in piece dye houses the fog removing apparatus must not circulate dust or result in a condensation of the steam. Metal pipes for conducting the air blast must not be placed over the dye tubs, nor over any place where the pieces are handled. The air must not be drawn from the vicinity of a coal pile, or under conditions that would result in dust being carried into the dye house. The last named difficulty can be prevented by covering the entrance to the pipes with canvas soaked in oil, which serves the purpose of a filter. The use of such a device is open to many objections and as a consequence is not used when it can be avoided. In piece dye houses there is a more rapid formation of steam than when the material is dyed in the

raw stock, in skeins or on spools. Velvet has another peculiarity. The pieces are very heavy (from 30 to 100 pounds each) and the goods absorb two or three times their weight of water or dye liquor, which makes the handling slow and laborious. The pieces while passing from one process to the other lie around a large part of the time and give off much steam.

The time during which the dye liquor is kept at a high temperature is another important factor in the formation of fog. For example, the dyeing of linen velvet requires boiling but a few minutes, after which the goods are cooled and wound on rollers. Likewise we have noticed in the dyeing of cotton velvet and similar goods, the temperature of the liquor in most of the kettles is not over 120° F., while only a few of the tubs are boiling. On the other hand, the dyeing of wool goods requires a temperature of 212° F. Moreover the manipulation of the material in the boiling liquor results in much more steam being given off. We have noticed the wide variation between different dye houses in the relation between the area of the dye tubs and the size of the room.

We will now refer to the important part played by the construction of the building. In removing fog from a dye house the engineer must deal with the conditions caused by the particular construction of the building, since it is generally out of the question to make extensive changes in the plant, such, for example, as the construction or removal of the roofs and putting in double windows. Nevertheless, there are cases in which some work in this direction is necessary. We have visited many old dye houses where it is impossible to remove the fog economically from the work rooms owing to the construction of the building. For example, we know of a dye house in Amiens which is built over a stream. The floor was laid with spaces between the boards to allow the water and dye liquor to escape. These conditions made the removal of the fog impossible. There is another dye house in Amiens where the stream runs along side the building, being separated by a very frail wooden partition. Moreover the work necessitates having the doors in the partition open a great deal of the time. The resulting dampness makes the removal of the fog from this dye house exceedingly difficult. We observed several dye houses near Lyons which were located in the lower floor of tenement buildings. Most of these dye houses are of slight importance, having an area of scarcely 600 to 800 square feet. In such cases the financial question makes the solution of the problem impossible. Moreover the small work rooms which are used only occasionally are often in very bad condition.

The material of which the building is made has an important influence on the problem. The condensation of the steam on the ceilings and sides of the building depends upon how good a conductor of heat the material is and upon its capacity to absorb moisture. Wooden roof timbers and roofs with boards or tiling under the rafters affords, in our opinion, the easiest solution of the problem of removing fog. Fully as good results are obtained by double roofs forming an air cushion. Roofs of iron and cement on the contrary facilitate condensation. This fact has been disclosed by our observations in different dye houses. Even when the problem has been solved a certain condensation remains with which the dyer must contend. For example, in the dry room of one bleachery we visited five double drying machines and two tentering machines were running in a room which was about 135 feet long. The cloth is delivered to these 12 machines at the rate of 40 yards per minute, giving a total production of 480 yards per minute or 28,800 yards an hour, equal to 288 cuts of 100 yards each. The goods contain an average of 11 pounds of water per cut so that in drying the production 3,168 pounds of water was evaporated per hour. On account of the high temperature of the workroom this steam was but slightly visible. The problem of removing fog was, therefore, almost completely solved, but the trouble with condensation remained. The large amount of vapor in the air condensed rapidly by reason of the air coming in contact with the cement roof. As a result there was much dripping of water on the drying and tentering machines. An attempt was made to protect the machines by stretching cloth and placing boards over

them. The cloth, however, made the room dark while the boards became dirty and splintered, causing trouble.

We noticed an interesting solution of a similar trouble in a mill at Amiens. A prepared canvas was stretched under the tiling of the roof. This canvas had been in place for nine years and prevented completely the dripping of the water on the machines below. It was coated every two years.

The location of the building has an important influence on the removal of fog. With the building detached it is possible to blow the fog out either through the roof or the side walls. On a building having several stories there is often only one free side next to the street. In such a case the blowing of the fog into the street is objectionable. There was one case in Roubaix where the owner of such a building was compelled to pay damages because of having blown steam from his dye house into the street.

(To be continued.)

DYE RECIPES.

The following recipes appear in the Dyers' Supplement, which is issued each month by the TEXTILE WORLD RECORD. The Supplement contains the colored samples, dyed according to recipes given. The selection of samples is carefully made, and it is the aim to show shades which are of especial interest to the dyer, and which the requirements of the market demand. The Dyers' Supplement is a 16-page pamphlet, in convenient form for preservation. Subscription price for the Dyers' Supplement $1.00 per year.

Recipe No. 113.

Red on Worsted Yarn.

Monochrome Red G on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Monochrome Red G.
(H. A. Metz & Co., 122 Hudson St., New York.)
6 lbs. Ammonium Acetate.
1 lb. Potassium Bichromate.

Enter the material at 160° F., bring slowly to a boil and dye at a boil for 1 to 1 1/2 hours.

Monochrome Red G is of a new group of dyestuffs which seems to offer many advantages. They are in reality after-chrome colors, dyed in a single bath, with the use of ammonium chromate, the latter compound being produced in the dye bath by the action of ammonium acetate with potassium bichromate.

They dye level, are easily matched, and possess excellent fastness to light, fulling and other finishing processes. They are recommended for all sorts of fast dyeing, where the color is not too heavy.

Recipe No. 114.

Blue on Worsted Yarn.

Brilliant Acid Blue V on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Brilliant Acid Blue V.
(Farbenfabriken Co., 66 Lafayette St., New York.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at a temperature not above 120° F., bring slowly to a boil and dye at a boil for one hour.

Brilliant Acid Blue V is very soluble, dyes level, penetrates well, and possesses good fastness to alkalies. Its fastness to light is fairly good.

Recipe No. 115.

Pink on Bleached Cotton Yarn.

Tetrazo Pink B U on 100 lbs. bleached cotton yarn. Prepare the dye bath with

½ lb. Tetrazo Pink B U.
(American Dyewood Co., 154 William St., New York.)
20 lbs. Common Salt.

Dye at a boil for one hour.

Tetrazo Pink B U is recommended where good fastness to light and washing is required, as it is among the fastest of the substantive pinks. When used on union goods the wool is dyed a trifle yellower than the cotton.

It is of especial interest in the dyeing of artificial silk.

Recipe No. 116.

Blue on Cotton Yarn.

Immedial Direct Blue B B Extra Conc. on 100 lbs. cotton yarn. Prepare the dye bath with

8 lbs. Immedial Direct Blue B B Ex. Conc.
(Cassella Color Co., 182 Front St., New York.)
16 lbs. Sodium Sulphide. Crystals.
6 lbs. Soda Ash.
25 lbs. Glauber's Salt.

Dissolve the dyestuff together with the sodium sulphide, and add to the dye bath, which already contains the soda ash and Glauber's salt. Boil up the bath, shut off the steam and dye for one hour just below a boil, keeping the material below the surface of the liquor as much as possible.

Immedial Direct Blue BB Ex. Conc. possesses excellent fastness to light, and very good fastness to washing and acid.

Recipe No. 117.

Brown on Worsted Yarn.

Fast Chrome Brown J A C on 100 lbs. worsted yarn. Prepare the dye bath with

3½ lbs. Fast Chrome Brown J A C.
(Kalle & Co., 530 Canal St., New York.)
3 lbs. Sulphuric Acid.
10 lbs. Glauber's Salt.

Enter at 100° F., raise slowly to a boil and dye at a boil for one hour.

Then after treat at a boil for 1/2 hour in a bath made up with

2 lbs. Potassium Bichromate.

Fast Chrome Brown J A C gives an olive shade of brown which possesses the characteristic fastness of the after-chromed colors.

Recipe No. 118.

Yellow on Worsted Yarn.

Domingo Alizarine Yellow R Extra on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Domingo Alizarine Yellow R Extra.
(C. Bischoff & Co., 451 Washington St., New York.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter at 120° F., bring slowly to a boil and dye at a boil for one hour. Then add

1 to 2 lbs. Sulphuric Acid

to exhaust the dye bath.

Then after treat by adding

2½ lbs. Potassium Bichromate

and boiling for 1/2 hour longer.

Domingo Alizarine Yellow R Extra possesses very good fastness to light and washing.

Recipe No. 119.

Green on Worsted Yarn.

Anthraquinone Green G X N Powder on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Anthraquinone Green G X N Powder.
(Badische Company, 128 Duane St., New York.)
10 lbs. Glauber's Salt.
3 lbs. Sulphuric Acid.

Enter at a temperature not above 120° F., bring slowly to a boil and dye at a boil for one hour.

Anthraquinone Green G X N Powder is a comparatively low cost dyestuff, is well adapted for the dyeing of loose wool and yarn. It possesses very good fastness to light, carbonizing, rubbing and fairly good fastness to washing and milling.

Recipe No. 120.

Red on Worsted Yarn.

Lanafuchsine B B S on 100 lbs. worsted yarn. Prepare the dye bath with

4 lbs. Lanafuchsine B B S.
(Cassella Color Co., 182 Front St., New York.)
10 lbs. Bisulphate of Soda.

Enter at 120° F. and dye at a boil for one hour.

Lanafuchsine B B S possesses excellent fastness to alkalies, carbonizing, stoving and good fastness to light.

Recipe No. 121.

Yellow on Mercerized Cotton Yarn.

Sulphur Yellow G Extra on 100 lbs. mercerized cotton yarn. Prepare the dye bath with

6 lbs. Sulphur Yellow G Extra.
(Berlin Aniline Works, 213 Water St., New York.)
12 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
80 lbs. Common Salt.

First boil up the bath with soda, add the dye previously dissolved by boiling up in water containing the quantity of sulphide of soda indicated above, and again bring to the boil for a short time. Then add the Glauber Salt and dye for one hour at about 200° F. After completion of the dyeing process, rinse well until the rinsing water flows off colorless. To the last rinsing bath add a little acetic or formic acid and treat the material for about 1/4 hour at the ordinary temperature in this bath. Finally hydroextract and dry.

Sulphur Yellow G Extra possesses very good fastness to washing, cross dyeing and good fastness to light, acids, alkalies and most of the other color destroying agencies.

Recipe No. 122.

Olive on Worsted Yarn.

Compound Shade on 100 lbs. worsted yarn. Prepare the dye bath with

3 lbs. Domingo Alizarine Yellow D.
1 lb. Fast Chrome Blue G.
(C. Bischoff & Co., 451 Washington St., New York.)
10 lbs. Glauber's Salt.
5 lbs. Acetic Acid.

Enter at 120° F., bring slowly to a boil and dye at a boil for one hour. Then add

1 to 2 lbs. Sulphuric Acid

to exhaust the dye bath.

Then after treat by adding

2½ lbs. Potassium Bichromate

and boiling for 1/2 hour longer.

The shade produced by this combination possesses very good fastness to light and washing.

Recipe No. 123.

Brown on Cotton Yarn.

Kryogene Brown G on 100 lbs. cotton yarn. Prepare the dye bath with

20 lbs. Kryogene Brown G.
(Badische Company, 128 Duane St., New York.)
20 lbs. Sodium Sulphide.
5 lbs. Soda Ash.
50 lbs. Common Salt.

Dissolve the dyestuff together with the sodium sulphide and add to the dye bath which already contains the soda ash and common salt. Boil up the bath, shut off the steam and dye the yarn for one hour at a temperature just below a boil, keeping the material under the surface of the liquor as much as possible.

In a standing bath not more than 12 lbs. of dyestuff need be used to produce the same shade.

Kryogene Brown G possesses excellent fastness to washing and boiling acid, as well as good resistance to light.

Recipe No. 124.

Blue on Cotton and Wool Union Material.

Union Navy Blue 9752 on 100 lbs. cotton and wool union material. Prepare the dye bath with

6 lbs. Union Navy Blue 9752.
(W. F. Sykes & Co., 85 Water St., New York.)
25 lbs. Common Salt.

Enter the material at a temperature of 140° F., raise slowly to 170° F., maintain this temperature for 1/2 hour, or until the cotton is up to the desired shade, then bring to a boil and boil for 1/2 hour or until the wool is up to shade.

Union Navy Blue 9752 will be found to be an excellent color for producing heavy dyeings of navy blue upon cotton and wool and union material.

Recipe No. 125.

Red on Cotton Yarn.

Tetrazo Chlorine Red 8 B on 100 lbs. cotton yarn. Prepare the dye bath with

1½ lbs. Tetrazo Chlorine Red 8 B.
(American Dyewood Co., 154 William St., New York.)
½ lb. Soda Ash.
25 lbs. Common Salt.

Dye at a boil for one hour.

Tetrazo Chlorine Red 8 B is fairly fast to acids and chlorine. It is of especial interest for union dyeing as it colors the wool a bright bluish red without leaving the cotton bare.

Recipe No. 126.

Blue on Worsted Yarn.

Mercerol Blue B on 100 lbs. worsted yarn. Prepare the dye bath with

5 lbs. Mercerol Blue B.
(Read Holliday & Sons, 7 Platt St., New York.)
10 lbs. Glauber's Salt.
3 lbs. Acetic Acid.
2 lbs. Sulphuric Acid.

Bring the bath to a boil and dye for 1/2 hour.

Mercerol Blue B is fast to light, milling, stoving, acids and alkalies.

Recipe No. 127.

Blue on Worsted Yarn.

Brilliant Acid Blue A on 100 lbs. worsted yarn. Prepare the dye bath with

2 lbs. Brilliant Acid Blue A.
(Farbenfabriken Co., 66 Lafayette St., New York.)
10 lbs. Glauber's Salt.
4 lbs. Sulphuric Acid.

Enter at a temperature not above 120° F., bring slowly to a boil and dye at a boil for one hour.

Brilliant Acid Blue A is very soluble, dyes level, penetrates well and possesses good fastness to alkalies.

Its fastness to light is fairly good.

Recipe No. 128.

Blue on Cotton Yarn.

Thioxine Indigo Blue on 100 lbs. cotton yarn. Prepare the dye bath with

10 lbs. Thioxine Indigo Blue.
(Geisenheimer & Co., 189 Front St., New York.)
20 lbs. Sodium Sulphide. Crystals.
8 lbs. Soda Ash.
35 lbs. Sodium Sulphate. Calcined.

Dissolve the color as usual with sodium sulphide. Add to the dye bath, boil up and skim. Then add the Glauber's Salt or common salt.

Enter the boiled out material and dye at a temperature of 170° F. for one hour. Then squeeze the material thoroughly and hang in the air for a short time for the color to develop.

Thioxine Indigo Blue will be found to possess the characteristic fastness of the sulphur colors.

For a running bath 6 lbs. of color may be used.

Mill News.

Those interested in receiving early and more complete investigated information of projected new mills, enlargements, improvements, fires facts and gossip of the trade are referred to the Textile Advance News, issued weekly by the publishers of the Textile World Record, at $15.00 per year.

COTTON.

New Mills.

*Alabama, Childersburg. The Coosa River Spinning Company expects to begin manufacturing about November 15, 1908. The product will be 10s and 12s hosiery yarns and the initial equipment will be 6,200 ring spindles with preparatory machinery. All machinery contracts have been placed, as previously reported, and equipment will be set up as fast as it is received. The Coosa River Spinning Company has a capital stock of $150,000. D. L. Lewis is president, treasurer and buyer; and George F. Brietz is superintendent. The product will be sold through the De Cort Yarn Company of Boston. A complete steam power plant will be equipped capable of driving 10,000 spindles, as this will be the complete equipment when the total amount of machinery is installed.

*Georgia, Calhoun. The new Echota Cotton Mills are expected to be ready for installing machinery at an early date, as the erection of the mill buildings is progressing very rapidly. 10,000 spindles and 300 looms will be the equipment. It will have 600 h. p. steam plant, electric lighting equipment, etc. T. W. Harbin of Calhoun is pres. and buyer.

*Georgia, Dalton. The Cherokee Mills reported organized some time ago, is preparing to begin construction of its plant. The capital stock of this company is $200,000 and the proposed equipment is 10,000 spindles and 300 looms for manufacturing cotton towels and blankets. J. J. Mangham is president.

Louisiana, New Orleans. Daniel Schofield, connected with the Textile Mills Corporation, has issued the prospectus of a $250,000 co-operative company to erect a cotton mill of 15,000 spindles near this place. The par value of a share is $10.00. The mill will be driven by electricity.

Massachusetts, Wilkinsonville. Sam Hird, who will be agent and superintendent of the new cotton mill, is in charge of the remodelling of the buildings recently bought by the company which he represents. About 40 men are at work in and around the property and repair work is progressing rapidly. Work on a new weave shed will be started shortly and when this work is well under way a number of houses for the employes will be erected. The water power equipment is being repaired and, among other improvements to the power plant an electric power plant will be built and equipped. It is understood that the John H. Meyer Company of New York is interested in the starting of this mill.

*North Carolina, Belmont. It is expected that the plant of the new Majestic Mfg. Co. will begin manufacturing fine yarns in the fall. The main building, on which construction work is going forward, is one story, 340 by 125 feet and will cost about $27,000. Its equipment will consist of 11,000 spindles; electricity will be used for motive power. A. C. Lineberger is president and the capital stock is $200,000.

*North Carolina, High Point. It is reported that plans for a new cotton mill will shortly be announced. It is probable that this refers to the company which was being organized last fall by F. M. Pickett and W. H. Ragon.

*North Carolina, Lincolnton. The Eureka Mfg. Co. has finally completed the erection of its building and installation of equipment and it is expected that manufacturing will begin shortly. 2s to 10s single and ply yarns will be manufactured on 1,020 mule spindles. J. M. Lineberger is pres. and L. J. Dellinger is treas. and buyer.

*North Carolina, St. Pauls. Officials of the St. Pauls Cotton Mill Co. advise that work will begin on the building in July. The capital stock of this company is $110,000. L. Shaw is pres., A. R. McEachern is treas. and J. W. Kaneer, supt. All the lumber necessary is on the grounds and about one-half the brick has been made. A steam power plant will be installed. Equipment will consist of 5,000 spindles and 18s to 24s hosiery yarns will be manufactured.

*South Carolina, Gaffney. The name of the Merrimack Mills has been changed to the Hamrick Mills as a result of the suit brought by the Merrimack Mfg. Co. of Lowell for infringing on their name. The equipment is being installed and manufacturing will begin in the near future.

*South Carolina, Simpsonville. Buildings for the Simpsonville Cotton Mills are nearly completed and will be ready for machinery in a few weeks. As previously reported the initial equipment will be 8,000 spindles and 200 Draper looms.

*South Carolina, Yorkville. While a definite date has not been set for manufacturing to begin in the new Lockmore Cotton Mills, it is understood that only a few weeks will be necessary for the completion of the plant. Electric power equipment is being installed and the 6,500 spindles with complementary machinery of which the manufacturing equipment consists, is nearly all set up. Other details have been given from time to time. Thomas P. Moore is president of this company.

Enlargements and Improvements.

*Alabama, Florence. It is reported that the Ashcraft Cotton Mills have decided to rebuild their power plant. Details of the proposd improvements were given in June.

*Connecticut, Danielson. It is reported that

the Danielson Cotton Co. will not build the bleachery for which plans have been made, unless better terms can be made with the owners of the site which it is proposed to build on. Water privileges along the river were purchased recently and the company is about to build a power plant.

*Connecticut, Moosup. Construction work has been started on the addition to the plant of the Aldrich Mfg. Co. and will probably be completed in four or five months. The contract for wood work has been awarded to H. Conture, and Hiram Franklin will do the brick work. The Aldrich Mfg. Co. makes fine cotton goods on 16,886 ring spindles, 19,360 mule spindles and 920 looms, the product being sold direct from the Providence office, 37 Weybosset St.

Connecticut, Westport. A new 100 horse-power water wheel is being installed by the Lees Mfg. Co.

*Connecticut, Willimantic. The Willimantic Mills (American Thread Co.) have received a new compound engine of 1,800 h. p. An addition to the present power house is being made in order to provide for this engine and also to hold five additional 200 h. p. boilers which will be added to the nine boilers already in use. A 475 K. W. generator is to be installed in the basement of No. 2 Mill. These improvements to the power department are to make the plant independent of the water supply which at some seasons of the year is very uncertain.

*Connecticut, Willimantic. Contracts have not been given out by Max Pollock, manufacturer of thread and spool cotton, for the sprinkler system for fire protection which will be installed in his plant. In addition to the above improvement, two small additions are being erected, one for office purposes and the other for drying and dressing.

*Georgia, Columbus. Improvements to the power department of the Eagle & Phoenix Mills are practically completed.

Georgia, Dalton. It is reported that improvements have been completed at the Crown Cotton Mills and new machinery recently installed has been started up. Ducks and osnaburgs are manufactured.

*Kentucky, Paducah. Particulars of the shut down of the plant of the Conhankus Manufacturing Co. are as follows: The mill will shut down July 25, for the purpose of making extensive changes on their engine. It is the purpose of the company to resume operations as soon as these changes are made. They advise that the plant has not curtailed in any way but has operated with full capacity for the past twelve months. No additions to the plant are contemplated.

*Maine, Brunswick. The officials of the Cabot Mfg. Co. have decided to have work commence as soon as possible on the proposed new addition. Details have been given previously.

*Maine, Westbrook. Plans for the new mill to be erected for the Dana Warp Mills are still indefinite, the putting in of the foundation at the present time being done on account of advantageous conditions due to low water.

*Massachusetts, Adams. New machinery for the plant of W. C. Plunkett & Sons in connection with the improvements noted last week, will be supplied as follows: The Kitson Machine Shop will furnish the picking machinery; Saco & Pettee Machine Shops will furnish cards and drawing; the Woonsocket Machine & Press Co. will supply speeders, etc. It is expected that the new machinery will be in position by September 1.

Massachusetts, Fall River. The Wampanoag Mills are making a number of improvements, putting the plant in a more up-to-date condition. A Sturtevant cotton conveying system has recently been installed in the picker house. The boiler house has been raised and a new Babcock & Wilcox boiler added to the steam equipment. New machinery is being put in the carding department such as speeders, etc. The mill is operating on full time.

*Massachusetts, Fall River. Very few of the machinery orders for the proposed enlargement to the Davis Mills have been placed as yet and contract for the building has not been given out. The directors, however, expect construction work to begin in about a week and progress will be rapid, as considerable preliminary work in the way of grading and getting the lot ready for the foundation has already been done.

Massachusetts, Fall River. Arrangements are being made to compound the engines in the plant of the Barnaby Mfg. Co. This will necessitate a shut-down of two weeks' duration, but it has not been decided when work will begin.

Massachusetts, Fall River. New Howard & Bullough pickers, 14 in number, have been installed in the Flint Mills to replace old machines.

*Massachusetts, Holyoke. The Lyman Mills have awarded contract for the proposed new mill. Complete information has been given previously. Construction work will probably start at once.

Massachusetts, New Bedford. Contract for the electrical work in the new weave shed being erected for the Potomska Mills has been awarded to the Eastern Electric Co. The foundations and walls have been completed and work is being done on the roof. When completed, the new weave shed will contain about 140,000 ft. of floor surface and will hold 2,600 looms. There will be no new machinery, the building being erected principally to give better light for weaving.

Massachusetts, New Bedford. Plans are being prepared for a one-story building of brick and concrete construction to be erected for the Dartmouth Mfg. Corp. The building will be 137 by 63 ft. and 16 ft. high. The new space will be used as an addition to the picker department.

*Massachusetts, Salem. The new machinery being added to the equipment of the Naumkeag Steam Cotton Co. is largely to replace old machinery. The complete equipment will be 19,968 mule spindles, 85,416 ring spindles and 2,600 looms. John F. Brooks is pres.; N. G. Simonds is treas.; W. P. McMullan is agent and buyer, and O. F. Bennett is supt. The product is sold through Parker, Wilder & Co. Commencing July 3, the

mills will shut down for two weeks, reopening July 20.

*Massachusetts, Southbridge. The Central Mills Co.'s plant has been brought thoroughly up-to-date in every way by the improvements made in the last few months, giving an increase in production of about 25 per cent. The increase in machinery is not as great as 25 per cent., but the improvements made have greatly facilitated their work. Two thousand new spindles and 40 new looms have been added, making a total equipment of 14,148 spindles and 400 looms. Kitson pickers, Whitin cards, drawing machinery and looms, and Howard & Bullough spinning frames have been added. Light sheetings, twine and thread are the product.

Massachusetts, Taunton. Extensive improvements are in progress in the cotton mill on Adams St. known as Depts. 11 and 12 of the New England Cotton Yarn Co. More up-to-date equipment is being installed.

*New Jersey, Passaic. Additions to the spinning department of the Brighton Mills consist of 1,040 new ring spindles.

New Jersey, Paterson. A new mill is being built on 4th Ave. and River St. for the H. F. Danner Textile Co. The dimensions are 110 by 160 ft., one story high. It is understood that the new space will be used for weaving cotton cloths. The building is of brick, mill construction. In February this company was reported to be adding a number of ribbon looms.

*North Carolina, Charlotte. The Chadwick-Hoskins Co. has completed the installation of electrical machinery in the Louise Mills.

*North Carolina, East Durham. Contracts for the new manufacturing equipment and for generators and motors to be used in the improvements at the Durham Cotton Mfg. Company have been awarded. Ginghams, chambrays and cheviots are manufactured on 820 narrow looms and 22,554 ring spindles, the production being sold through Joshua L. Bailey & Co., Philadelphia and New York. The capital stock is $450,000. W. A. Erwin is pres. and J. Harper Erwin is sec., treas. and buyer.

*North Carolina, Gastonia. Contract for electrical equipment for the Loray Mills has not been awarded, as the management has not fully decided on plans to be followed. Thomas E. Moore is pres., treas. and buyer.

*North Carolina, Hope Mills. Extensive alterations are being made in the Hope Mills Mfg. Co.'s plant owing to the discontinuing of the finishing department and the decision to install 344 new looms. Rapid progress on improvements is being made.

North Carolina, Kings Mountain. Electrical equipment has been installed in the plant of the Lula Mfg. Co. This equipment includes 8 motors with an aggregate of 500 horse-power, 2,200 voltage, costing $8,000.

*North Carolina, Kings Mountain. New electric power equipment for the Dilling Cotton Mills has been purchased and will be installed just as soon as it arrives.

North Carolina, King's Mountain. Contract has been made with the Southern Power Co. by the Dilling Cotton Mills for furnishing electricity with which to operate its plant.

*North Carolina, Mayodan. Details of the damage to the plant of the Mayo Mills are as follows: One end of the mill was struck by lightning which caused the walls to fall in and the roof to collapse. The damage to machinery was small, some of the winders only being broken. The plant will soon be repaired and ready for operation.

North Carolina, Raleigh. The Raleigh Cotton Mills, the Pilot Cotton Mills Co. and the Caraleigh Mills Co. will at once arrange for the installation of electrical equipment to drive their machinery. These mills have contracted with the Central Carolina Power Co. for electric power.

*North Carolina, Smithfield. The Smithfield Cotton Mills have installed 40 deliveries of Mason's 1908 Model drawing machinery. A two-compartment standard cotton warehouse with capacity of 3,500 bales has just been completed.

North Carolina, Troy. It is reported that S. J. Smitherman and J. C. Hurley are planning to develop from 1,000 to 2,000 horse-power by electricity for operating cotton mills. When this project is completed the Smitherman Cotton Mills, of which Mr. Smitherman is president, will be driven by electric power and it is probable that the new mill, which it was reported last November was contemplated, will be erected. Power will be developed on Little River, five miles from Troy.

Pennsylvania, Philadelphia. D. Jamieson's Sons, Trenton Ave. and Sargeant St., who have been manufacturing ingrain carpets and bar towels on 46 looms, are disposing of their carpet looms and replacing them with looms for the manufacture of towels, on which they are doing a large business, selling the production direct.

*Rhode Island, Albion. Construction work started early this week on the new mill to be erected for the Valley Falls Co. The new structure will be of wood, 100 by 73 ft. and 5 stories in height. As previously reported, the building will be erected under the supervision of the officials of the Valley Falls Co.

Rhode Island, Centerville. A large shipment of Draper looms has arrived for the Centreville Cotton Mill, B. B. & R. Knight.

Rhode Island, River Point. The Royal Mills, B. B. & R. Knight, are installing a new engine in place of the one which broke down a few weeks ago.

*Rhode Island, Woonsocket. Part of the Lawton Spinning Co.'s new mill is in operation, employing about 50 hands. More help will be added gradually and it is expected that before the middle of September, the entire mill will be in operation, giving employment to about 400 operatives.

*South Carolina, Fairmont. The report last week to the effect that a new cotton mill would be erected at Wellford, this state, referred to the

proposition for enlarging the Tyger Cotton Mills of this place. In July, 1907, the Tyger mill property was sold at auction to H. C. Fleitmann of New York City and Lewis W. Parker of Greenville, S. C. At that time it was reported the owners would reorganize and equip the plant to do a larger business. The project at present is in the form of an enlargement and carries out the original intention of the owners. Connected with Messrs. Parker and Fleitmann in this project is St. John Courtenay of Newry, S. C., who will have charge of the plant. Information can be secured by addressing Mr. Courtenay.

*South Carolina, Greenwood. The Grendel Mills have started up after a shut down lasting two weeks. The Greenwood Mills, which it was reported would shut down indefinitely have started up and are running four days a week. The company, however, is planning to add 15,000 spindles to the No. 1 plant and will most likely be shut down for several months while these improvements are under way.

*South Carolina, Union. We are advised that the Union-Buffalo Mills are installing 2,100 new Draper looms to replace old looms which are being thrown out, instead of the number previously reported. All the machinery equipment of these mills is being rearranged and repairs being made in order to start up the mill in as good shape as possible.

Virginia, South Boston. The Century Cotton Mills will add a quantity of machinery to its plant. 10s to 30s hosiery yarns are manufactured at present on 8,000 spindles.

*Virginia, Danville. Lockwood, Green & Co., engineers in charge of improvements at the Dan River Power & Mfg. Co. have placed contract for a 1,500 K. W. steam turbine and turbo alternator, 25-cycle 3 phase 480 volts, and complete barometric condenser, exciter, switchboard, etc.

Virginia, Petersburg. The Virginia Consolidated Milling Co. has awarded contract for two new turbine water wheels.

Mills Starting Up.

Connecticut, Uncasville. The mills of the Uncasville Mfg. Co. both here and in Versailles have resumed manufacturing after a brief shut down.

*Georgia, Lindale. Manufacturing has been resumed in the Massachusetts Mills in Georgia. During the shut down, which lasted two weeks, repairs on the engines and boilers were completed and parts of the buildings painted.

Pennsylvania, Philadelphia. William Clarke's Waverly Mills, in which table damasks are manufactured on 134 broad looms, and which have been shut down for the past month, have again been started up. 28 looms have been put in operation and the expectation is that the entire mill, which is located at Cedar and Margaret Sts., Frankford, will be in full operation again within a few weeks.

WOOLEN.

New Mills.

*Colorado, Denver. The Colorado Woolen & Knitting Co. started manufacturing men's, women's and children's hosiery on July 10. Equipment consists of 20 knitting machines and 1 sewing machine. Peter H. Hansen is pres., supt. and buyer and Francis A. Hauber is treas. About 20 hands are given employment. They are interested in carding machinery, winders, dye house equipment, electric power and light equipment, worsted finishing machinery supplies, and in looms and weaving equipment, as it is intended to equip a weaving department at some future date.

*Massachusetts, Monson. Work on the new Ellis Mill, particulars of which have been given previously, is being pushed rapidly and good progress is being made.

Michigan, Pickford. It is stated that arrangements have been practically completed for the establishment of a woolen mill at this place, the capital being furnished by local parties. Plans call for a frame building 2 1/2 stories high, 40 by 70 ft.

*New York, Watervliet. The new Roy Woolen Company, reported incorporated last week with capital stock of $75,000, has leased one of James Roy & Company's factories and after September 1 will begin the manufacture of carriage cloths and dress goods. Charles P. Roy of Troy, D. W. Tillinghast of New York, and Elmer Winters of this place, are in control of the Roy Woolen Company.

*Oregon, Pendleton. The new town which we reported would be built on the Columbia River, will be known as Gordon Falls. The Gordon Falls Electric & Mfg. Co. has been incorporated with capital stock of $225,000 and has bought out the machinery of a Pendleton mill and will transfer it to a new building which will be erected shortly. Woolen goods and blankets will be the product. The company will start with 3 sets of woolen cards and 25 looms. It is expected that production will begin during the summer of 1909. E. Y. Judd of Pendleton, Oregon and Hartford, Conn., who is connected with the firm of Judd & Root, wool dealers, of Hartford, is interested.

*Pennsylvania, Swedeland. Plans have been prepared for the new woolen mill to be erected for Charles Markland of this place. It is stated that the building will be 83 by 33 ft., and that contract for construction work has been awarded to Alfred Noblitt of West Conshohocken, Pa.

Enlargements and Improvements.

*Arkansas, Nashville. The purchase of the Arkansas Woolen Mill, Inc., by James McMahon and his father, Martin McMahon of Knoxville, Tenn., has been completed. Details of negotiations with new machinery required have been given previously.

*Connecticut, Stafford Springs. A new set of cards has arrived at the Central Mfg. Co. and will

be set up at once in the new addition on which construction work was recently completed. As reported, improvements will also be made to the finishing room equipment. Cyril Johnson is owner of the plant and buyer.

*Connecticut, Torrington. Rapid progress is being made on the new plant of the Warrenton Woolen Co. The chimney has been completed and a large force of men is employed on the factory proper. The concern hopes to occupy the new quarters in the fall.

*Illinois, Hanover. Improvements to be made at the plant of the Hanover Woolen Manufacturing Company during the summer shut-down of four weeks include the putting in of new head gates and making other repairs and improvements to their water power. No new machinery is being added.

*Maine, Foxcroft. The contract for Mayo & Sons new woolen mills, details of which have been given previously, has been awarded to the Eastern Concrete Construction Co. of Boston and it is expected they will commence work upon it at once. The building will be completed early in September. Work in the present plant will be suspended for some time so that the water in the pond can be drawn off while the new wheel house is being constructed.

Maine, Wilton. Extensive repairs are being made to the machinery in the lower mill of the Wilton Woolen Co. A larger pen stock has been ordered and will be put in as soon as received.

Massachusetts, Blackinton. A new dyeing machine has been installed in the dye house of the Blackinton Mfg. Co. Much of the machinery throughout the mill is also being overhauled and changed. The worsted spoolers are being moved from the spinning room to the second floor, as the worsted department is the growing department of this company. While the changes are being made the card room and spinning department will be practically closed.

*Massachusetts, Clinton. Contract has been awarded for engines for the new power plant of the Bigelow Carpet Co.

*Massachusetts, Fitchburg. In from two to three weeks, the Shirreffs Worsted Co. expects to occupy its new weave shed on which construction work started May 1. It was reported last week that new finishing and winding machinery will be installed in addition to the new looms required. The Shirreffs Worsted Co. has capital stock of $150,000 and manufactures fine worsteds for men's and women's wear, buying all yarns. Geo. R. Wallace is pres.; John Shirreff, treas. and buyer; and Wm. H. Hodgson, supt. The plant is operated by steam power and does yarn and piece dyeing. Product is sold through Ethan Allen of New York.

Massachusetts, Lawrence. It is reported that plans have been drawn for a new worsted mill to be erected for the Pacific Mills. Foundations will be put in on the bank of the Merrimack River on the east end of the Boston & Maine R. R. bridge. The structure will be of brick, four stories high, 200 by 142 feet. Contract has been awarded to L. E. Locke.

Massachusetts, Lawrence. Eight new looms are being added to the equipment of the Marshall Worsted Company, making an equipment of 20 64-inch, 4 by 4 box looms. Worsted goods are manufactured and the plant is running overtime. All yarns are bought.

Massachusetts, Methuen. The Tremont Worsted Co. is enlarging its dye house and adding new equipment consisting of a piece dyeing machine from the Rodney Hunt Machine Co. and a singeing machine built by the Curtis & Marble Machine Co.

*Massachusetts, North Andover. Construction work has started on the new boiler house for the Brightwood Mfg. Co. The new dye house was recently completed and is in operation.

*Massachusetts, Pittsfield. Improvements at the Pontoosuc Woolen Mfg. Co. are simply the building of a new roof on the wool scouring plant.

*Massachusetts, Saugus. At a recent meeting of the directors of the Saugus Mfg. Co. it was decided to increase the capital stock to $250,000 by issuing 1,600 shares of common stock at $100 par. Those holding stock at present will be allowed to purchase the issue pro rata, after which shares will be offered to the public. P. R G. Sjostrom is treasurer.

*Massachusetts, Worcester. Phillip M. Pfaffmann advises that he has not decided upon a date for starting up his plant. A new boiler is being put in as previously reported. Satinets, piece dyes and unions were manufactured on 2 sets and 32 narrow looms, product being sold by Sawyer & Blake and H. A. Caesar & Co. Mr. Pfaffmann is proprietor, superintendent and buyer.

Massachusetts, Worcester. A new piece dyeing machine will be added to the equipment of the Bay State Worsted Co. Fine and fancy worsteds are manufactured on 48 broad looms. D. O'Connell is buyer.

*New Hampshire, Bristol. The Dodge-Davis Mfg. Co. is equipping a new electric power plant. As previously reported, an addition is being built to increase their facilities for wool scouring.

*New Jersey, Passaic. The equipment of the new mill to be erected for the Gera Mills will consist of 150 looms. Fine worsted dress goods are manufactured on an equipment which at present is 600 looms. C. Bahnsen is general manager and buyer and Otto Bruckner is supt. C. Bahnsen & Co., 80-82 Leonard St., New York, are the selling agents.

New York, Yonkers. Alexander Smith & Sons Carpet Co. are erecting a new addition to hold about 100 Axminster looms.

*Pennsylvania, Chester. The Emmott Worsted Spinning Co., located at 5th and Morton Sts., whose plant has been shut down for the past week or two, in order that the company might make improvements to its power and other departments in the mill, has again been started up. The company manufactures worsted yarns, their equipment

consisting of 3 cards, 3 combs and 2,000 spindles, Bradford system, which it is said will be greatly increased within the next few months. They sell direct.

Pennsylvania, Philadelphia. The Ivins, Dietz & Metzger Co., who have recently been making extensive improvements to their large carpet mill at 7th and Lehigh Ave., have had plans prepared for a new tank and valve house which they expect to have erected within a few days.

Rhode Island, Mapleville. Plans have been completed and work commenced on the foundation for a new dye house for the Coronet Worsted Co., Joseph E. Fletcher, pres. and treas. The structure will be built of concrete blocks. Thomas Cullinan of Providence is in charge of the work.

Rhode Island, Woonsocket. A new picker house is being built by Sayles & Prendergast, manufacturers of fancy worsteds, to replace the old one which has been torn down.

*Wisconsin, Sheboygan Falls. Improvements at the Brickner Woolen Mills comprise the installation of another set of cards and a mule, making a 7-set mill.

Mills Starting Up.

Connecticut, Danielson. After a shut down lasting several weeks, preparations are being made to start the plant of the Danielson Worsted Co. Fancy worsteds are manufactured on 12 broad looms. They buy 2/20s to 2/40s worsted and 2/12s to 2/40s cotton. C. S. Chase is treasurer, agent and buyer.

*Massachusetts, Webster. The woolen department of S. Slater & Sons, Inc., which shut down early in July, has started up in full giving employment to 1,000 hands. The cotton department of this company has been kept running.

Massachusetts, Worcester. Preparations are being made to start up the branch at this place of the Darling Mfg. Co. which has been shut down for several months. Cotton warp Thibets are manufactured on 2 sets and 32 looms.

Mills Shutting Down.

Vermont, Hartford. The Hartford Woolen Co. has closed its mill for two weeks and this period may be extended unless business in their lines picks up. Coatings and cassimeres are manufactured.

Vermont, North Hartland. The Ottaquechee Woolen Co. is shut down for a period of two weeks and possibly for a longer time.

SILK.

New Mills.

*Connecticut, Mystic. The Ninigret Mills Co. has filed a certificate of incorporation with the Secretary of State. Otho O'Sullivan, Stonington, Geo. W. Mansfield of Westerly, R. I. and Augustine T. L. Ledridge, of Westerly, are the incorporators. The authorized capital stock is $100,000 and business will begin with $13,000 paid in. This is the new silk mill for which a building is being erected at Industrial Place.

New Jersey, Paterson. Excavating for the foundation of a new mill, which will be one of the largest in the city, has just begun. The mill will occupy lots at the corner of Clay and Vine Sts. and will be 400 by 54 ft. and 4 stories high. The building will be of brick and the cost of the mill alone will be in the neighborhood of $80,000. When equipped with power and shafting it is estimated the total investment will amount to $135,000. Franz C. Reinhart, operating a plant of 1,500 braiders on various lines of braids, trimmings and shoe laces is the proprietor. P. S. Van Kirk Co. has the contract for the erection of the new mill and has agreed to have it ready for occupancy by the first of December. It is understood that another large mill will shortly be erected at a cost of $25,000 by a prominent silk goods manufacturer.

*Pennsylvania, Scranton. Construction work on the buildings for the new W. A. Lush Silk Co. was begun on July 6 and it is expected that the buildings will be completed and machinery installed ready for manufacturing about September 1. The equipment will be 8,000 spindles for silk throwing. The location of the new building is on Clearview St. and No. Lincoln Ave. and the dimensions of the main building one story high, 126 by 45 ft. The estimated cost is $30,000. W. A. Lush is supt. and buyer.

Enlargements and Improvements.

*Connecticut, South Manchester. A new turbine engine is being added to the power plant of Cheney Bros. The new engine is capable of developing 750 h. p. and will be used to generate electrical power to be used as auxiliary to that from the Manchester power station.

*Connecticut, Willimantic. The sprinkling system being installed in the plant of the Holland Mfg. Co. includes a fire pump of 500 gallons per minute capacity, also reservoirs on the premises from which water may be drawn in case of shortage in the city water supply. The new storehouse being erected for this company is of concrete, brick and iron throughout with fireproof doors. The building is 2 stories high and basement.

Maine, Westbrook. Repairs are being made in the plant of the Haskell Silk Co. and operations have been suspended until July 14. The Haskell Co. has equipment of 7,000 spindles and 200 looms and manufactures silk dress goods.

*Massachusetts, Holyoke. It has been announced that work on the 4-story addition to the William Skinner Mfg. Co. will be begun at once. This project was first mentioned in October, 1907, when it was stated that the dimensions would be 72 by 472 ft. The new building with the new power plant which will be built will cost about $130,000. At present 1,053 broad looms and 832 braiders are operated on braids and silk linings.

*New Jersey, Paterson. The new Aronsohn Silk Mill has been completed. The first and second floors will be occupied by Samuel J. Aronsohn, Inc.; the third floor has been leased by Abraham D. Cohen, now operating 100 looms on

broad silks in the Hall Mill; while the Imperial Silk Co., of which Mr. Aronsohn is president, will occupy the fourth floor. It is stated that a large addition will be built to the present new building within a few months.

*New York, Olean. The new equipment to be installed in the plant of the Feder Silk Throwing Co. consists of 5,000 new spindles.

Pennsylvania, Scranton. A large addition is to be built to the plant of the Ashley Silk Co. on Academy St. The new building will be 83 by 48 ft. and will adjoin the present structure. The Ashley Co. are silk throwsters, operating 12,000 spindles at present.

MISCELLANEOUS.

*Connecticut, Meriden. Particulars of the new H. Adlman Co. are as follows: Thirty-five braiders for the manufacture of diamond, flat and fancy braids have been installed and employment is being given to 25 hands. The capital stock is $5,000. H. Adlman is pres., treas. and buyer. The plant is being operated by electric power and the product is sold direct. Mr. Adlman advises that orders on hand will keep the plant running day and night for a number of weeks. All yarns are bought.

*Connecticut, New Britain. Nathan E. Mag has equipped a braiding plant at the corner of Main and West Main Sts. as previously reported. A few days ago a small fire occurred causing damage estimated at $50.

*Georgia, Chickamauga. Late reports of the progress of new buildings for the Crystal Springs Bleachery Co. indicate that the new plant will be ready for operation about September 15. The equipment will have daily capacity for bleaching 35,000 yards of cloth. Details of this project have been given.

Illinois, Chicago. The Western Thread & Dye Works is enlarging its plant, and adding machinery for the purpose of largely increasing the output of the bleaching department.

*Maine, Alfred. No advance operations have been started toward putting the Littlefield Mill in a condition for the machinery of the new Alfred Embroidery Co. The delay is explained by statement that the new company has not yet secured deeds to the property.

Massachusetts, Attleboro. Fire, which started from an unknown cause, in the drying room of the James Orr Co., caused damage of about $3,500, principally in stock, before it was controlled. The damage was covered by insurance.

Massachusetts, Milford. The Wm. Lapworth & Sons Co. will not build an addition as previously reported under contemplation, but will fill up vacant space in the present plant with 18 new looms, contract for which has been placed. This is the only improvement under consideration at present, although it is probable that an addition will be erected in the future. Eight of the new looms have been received and set up.

Massachusetts, Webster. The Stevens Linen Works has shut down while new boilers are being put in. Other improvements also will be made while the mill is closed. The linen works have run steadily throughout the business depression and it is stated that the decision to make repairs at this time is not due to any lack of business.

*New Hampshire, Meredith. The Atlas Linen Corporation will remove its machinery from the plant at this place and store it until suitable quarters have been decided upon in some other place. All machinery and stock will be removed by August 1. This decision has been reached owing to the slight demand at present for their production and to a series of accidents which have taken place at the building. Within three months there have been two fires and the penstock has been seriously damaged. Louis McCarthy, 16 Division St., South Boston, is treasurer.

*New Jersey, Bayonne. The weaving plant to be built and equipped for "Leolastic," a company incorporated with capital stock of $100,000, will be 175 by 250 ft. and will be equipped with 100 looms for weaving narrow fabrics. Construction work has started.

New Jersey, Camden. Henry C. Lees, formerly located in Philadelphia, has removed his plant to this city, where he is operating 30 braiders covering gas hose, insulated wires, etc. His office is at Merchantville, N. J. He uses 8/2, 10/2 and 4/1 cotton yarn.

New Jersey, Paterson. A $15,000 boiler house is to be erected for the Barbour Flax Spinning Co. at Spruce and Grand Sts. to furnish steam for the company's large plant there. The structure will be thoroughly modern in every respect and it is expected will be completed within four months.

*New Jersey, Paterson. The Wagaraw Bleachery has been incorporated with capital stock of $150,000. J. T. Thomann, R. C. Logan and G. Van Cleve are the incorporators. Some time ago Mr. Thomann was reported to have bought a tract of land on which a bleachery would be erected. Messrs. Thomann and Logan are from New York while Mr. Van Cleve is a Paterson man.

*New York, Chadwicks. Plans are going forward for the proposed improvements to the Utica Willowvale Bleaching Co. Several weeks ago it was reported that the capital stock had been increased from $250,000 to $375,000 and a new boiler plant would be erected. A complete system will be installed to utilize the exhaust.

*New York, New York. A new corporation known as Smith & Uhlig, which recently was granted a charter with authorized capital stock of $15,000, will do a silk finishing business in this city. Carroll D. Smith is pres. and Gus. H. Uhlig, Jr., of Newcastle, Pa., is treas.

New York, Wappingers Falls. The Dutchess Company, Inc., printers and dyers of cotton fabrics, has resumed work at its plant and expects to shortly work full time.

Pennsylvania, Philadelphia. Messrs. Largman Brothers, who during the fall of 1907 put in machines for the manufacture of knitted neckties, are

now arranging for the installation of machinery in the way of braiders, etc., for the manufacture of millinery braids, trimmings, etc. They are located at 10th and Filbert Sts.

Pennsylvania, Philadelphia. Hensel, Colladay & Co., who have been occupying four floors of the building at Franklin and Vine Sts., are equipping the first floor with machinery, being now the sole occupant of the building of which they are the owners. They are manufacturers of dress and cloak trimmings, operating 35 knitters and 185 looms, selling direct through their offices in all the large cities in the U. S. They have a capital of $150,000; George S. Hensel, pres.; W. W. Colladay, treas.; S. B. Colladay, sec., and H. Haase, supt. They buy all kinds of yarns.

Pennsylvania, Philadelphia. The Crescent Machine Co., formerly located at 3221 Chestnut St., has moved into larger quarters at 4238 Ludlow St. Additional machinery will be installed and the company will be better able to execute orders with more promptness than ever.

*Rhode Island, Arkwright. The Interlaken Mills have started up. The mill has been shut down for the past three weeks for repairs and the installation of a new boiler.

Rhode Island, East Greenwich. The Regina Mfg. Co. is installing machinery in the old Dews Woolen Mill on Division St. and will manufacture tracing cloth for draughtsmen.

*Rhode Island, Pawtucket. The new building being erected for the Dexter Yarn Co. will be used entirely for storage. Dimensions are 22 by 48 ft., and 2 stories are about completed. Building is of wood and brick and of fireproof construction.

*Texas, Galveston. J. E. Kauffman, secretary of the Galveston Business League, advises that the organization of a company for the erection and operation of a bagging factory is meeting with favor. All the stock will shortly be taken, details for the construction of the factory arranged, and organization perfected. The committee in charge of the project will not make public any of the plans at the present time.

*Texas, Galveston. The capital stock of the Galveston Waste Mills has been increased from $5,000 to $10,000, instead of to $100,000 as previously reported. This company was incorporated in July, 1907, and started manufacturing May 1 of this year. Waste for wiping machinery is manufactured. J. H. Langbehn is pres.; Fred Hartel, treas., and W. G. Jones, supt. and buyer. The plant is operated by electric power.

*Wisconsin, Milwaukee. The Badger Dye Works is building a large addition to its plant at 3d and Wight Sts., and it is reported will engage in piece dyeing. This concern has done a large garment dyeing and cleaning business.

FIRES.

Massachusetts, Fall River. A small fire occurred in the picker room of the American Linen Co., but was confined to the stock and caused but little damage.

New York, Amsterdam. A fire of slight proportions recently damaged the picking room of L. E. Harrower's Knitting Mill, in which he manufactures wool, cotton, and fleeced underwear, operating 12 sets, 50 cylinder knitting machines, and 120 sewing machines, the production being dyed and finished and sold through New York.

North Carolina, Mayodan. The Mayo Mills suffered a severe loss by fire which was caused by the buildings being struck by lightning. Wm. C. Ruffin, treas., states that the damage is approximately $30,000 and about one month will be required to make repairs before operations can be resumed. As soon as the insurance adjustment is made, the work of rebuilding will begin.

Pennsylvania, Philadelphia. The waste manufacturing plant of Joseph Gubbins at Trenton Ave. and Somerset St. was almost destroyed by fire, causing a loss of $6,000.

Pennsylvania, Philadelphia. A small fire occurred in the two and one-half story brick building at 147 W. Thompson St. occupied by the Continental Dye Works, T. A. Harris & Co., Inc., props. Fire originated from overheated sulphur. The loss is small.

Pennsylvania, Philadelphia. The Rainbow Dye Works, owned and operated by Haslam & Querner, located at Lehigh Ave. and Howard St., was slightly damaged by fire.

Rhode Island, Warren. Fire in the picker department of the Parker Mills caused damage of several thousand dollars, fully covered by insurance. The fire originated in a waste machine. This is a branch of the Parker Mills of Fall River. Other departments of the plant are in operation.

FACTS AND GOSSIP.

*Alabama, Jacksonville. The old plant of the Ide Cotton Mills, which has been closed or running half time for several months, has started up on full time. During the past few months a new mill has been erected and equipped by this company.

Connecticut, Bridgeport. The Connecticut Web Co. has filed at the office of the Secretary of State a certificate changing the name of the company to the Connecticut Web & Buckle Co. 75 looms and 300 braiders are operated on webbings and trimmings.

Connecticut, Central Village. The plant of the Plainfield Woolen Co. is being run overtime several nights a week until nine o'clock. The Central Worsted Co., Inc., is not pushed for deliveries and the full production is not being turned off. As previously reported, the capital stock of the latter company was increased in January from $50,000 to $75,000 to provide for an addition.

Connecticut, Jewett City. A 12-inch steam pipe in the boiler house of the Aspinook Co. burst ne-

cessitating the shutting down of the plant temporarily, and injuring three employes.

Connecticut, Killingly. The Board of Trade is offering free factory sites as a means of attracting outside industries to locate here.

Connecticut, Meriden. The plant of the Silver City Braid Co. at this place is closed and it is understood that the business will be taken to New Britain. E. Derecktor, president, has resigned his office and disposed of his stock in the concern. Nathan E. Mag, treas., is in charge.

*Connecticut, Thompsonville. The Upson & Martin Carpet Co. has started on a schedule of working hours from 7 A. M. to 10 P. M. This step was made necessary by the rush of orders.

Delaware, Dover. The one story brick mill formerly used by Post & Sheldon as a plant for weaving broad silks, has been sold by them to the Dover Lumber Co. Machinery is being installed for the manufacture of baskets.

*Florida, Jennings. W. E. Privett, who has been reported as contemplating the organization of a cotton mill company, gives the following information regarding his project: "I am interested in cooperating with a company in the erection of a mill for the manufacture of Sea Island cotton at this point. I own a farm through which the Allapaha River runs. One of the largest hydro-electric power plants in the South could be developed. I would like to sell to some company which would establish a power plant and cotton mill, as a proposition of this kind could be made a success owing to the location in the centre of the Sea Island cotton district of Georgia and Florida. I would take stock in such a company and would be glad if you would put me in touch with some one interested in such an enterprise."

*Georgia, Columbus. C. F. Sharpe of Nashville, Tenn., states that recent reports to the effect that a cotton mill would be erected on the land on which he recently secured an option, which is located just north of this place, are incorrect. Mr. Sharpe's address is 421 Union St.

*Illinois, Chicago. There is no foundation for the rumor that the International Harvester Company has purchased the cordage plant in Yucatan, Mexico.

Illinois, Chicago. A petition for an injunction to prevent John A. Davidson from getting control of the Zeglen Bullet Proof Cloth Co. has been filed by F. H. Wurzer, one of the stockholders.

Kentucky, Louisville. It is reported that the Commercial Club has received a proposal regarding the establishment of a worsted yarn mill at this place.

*Kentucky, Louisville. No further information of the New Albany Woolen Co., reported incorporated with a capital stock of $20,000, and the New Albany Hosiery Co., reported incorporated with a capital stock of $35,000, has been received, and it is not known who are the interested parties or whether manufacturing plants will be started here or in New Albany.

Maine, Kezar Falls. About one-half the usual number of hands are employed in the Kezar Falls Woolen Co. More orders are being received, however, than for several weeks and it is hoped that the full complement of hands will be given employment in the near future. All wool dress goods and suitings are manufactured on four sets and with 32 broad looms.

*Maryland, Dickeyville. The Ashland Mfg. Co. will operate as previously, the only change being in the officers and stockholders. It was reported last week that the Dickey family had sold out its interests to a new company. J. Hurst Purnell is pres. and buyer, and J. C. Wilmerding, Jr., is treas. Wellington, Sears & Co. will be the selling agents. The plant consists of 2,900 ring spindles, 20 sets of wool cards, 29 cotton looms and 83 broad woolen looms. The plant is in operation.

*Massachusetts, Boston. It is reported that plans have been taken up for the new cotton mill company being promoted by E. N. Foss. Details of the proposed mills have been given.

Massachusetts, Boston. J. F. Milner has opened an office at 206 Summer St. and is acting as direct purchasing agent for fleece wools for mill accounts.

Massachusetts, Fall River. A Committee of New Industries has been appointed by the Fall River Merchants' Association and an attempt will be made to induce manufacturing enterprises to locate in this city. The committee comprises J. S. B. Clarke, John H. Gormley and Daniel J. Sullivan.

Massachusetts, Franklin. It is reported that John W. Linnehan, connected with the Bart Linn Woolen Co., has taken possession of the machinery and business of the Franklin Yarn Co.

Massachusetts, Graniteville. The working hours at the Abbott Worsted Co. both here and at the branch plant in Forge Village, have been increased to 50 hours a week. For the past few months, both plants have been running on a 40-hour schedule.

*Massachusetts, Holyoke. J. Metcalf, treas. of the Farr Alpaca Co., advises that while the company recently purchased a piece of land adjoining their Jackson St. mill, there is no possibility of a new mill being erected for some time. The purchase was made at this time principally to prevent the property falling into the hands of undesirable parties. The land at present is being graded with a view to improving the company's facilities for unloading and storing coal.

*Massachusetts, Lawrence. The Lawrence Dye Works Co. has issued 1,000 shares of treasury stock, making $500,000 stock outstanding. We reported the probability of this issue in April.

Massachusetts, Lawrence. The mill of Walworth Bros. in South Lawrence has begun a night and day schedule owing to the large number of orders received. 200 broad looms are operated on ladies' dress goods and men's wear. Cotton, silk, woolen and worsted yarns are bought. J. P. Walworth is buyer.

Massachusetts, Lowell. Creditors of the Shaw

Machine Co. have received a 10 per cent. dividend, making 25 per cent., the first payment being 15 per cent. The company, which manufactured worsted machinery, failed in April, 1906, with a total indebtedness of about $240,000.

Massachusetts, Lowell. Local manufacturing conditions show considerable improvement. It is stated that the Merrimack Mfg. Co. is gradually increasing the amount of machinery on full time. The Massachusetts Cotton Mills, which were closed last week, started up Monday morning; and the Lawrence Mfg. Co., which is perhaps the largest knitting plant in this section of the country, also started up Monday morning. It was reported previously that the Massachusetts Cotton Mills will shut down from August 10 to 22.

*Massachusetts, Lowell. No changes will be made in the plant of the Merrimack Woolen Co. The incorporation reported last week was simply to make the concern a Massachusetts corporation instead of a Maine corporation. The change was made for convenience.

Massachusetts, Millbury. John E. Eaton of Eaton & McKnight, attorneys, 45 Milk St., Boston, has bought the buildings and most of the assets of the U. S. Linen Co. Mr. Eaton is acting for the bondholders and for the International Trust Co. No information can be given out at present regarding what will be done with the plant but a statement is expected in about ten days.

Massachusetts, Newburyport. The Glen Mills, about which a number of reports have been published recently in some papers, are a flour manufacturing concern and have nothing whatever to do with textiles.

Massachusetts, New Bedford. The Manomet Mills have bought a tract of land adjacent to the mill. It is stated that no building projects are contemplated at the present time.

Massachusetts, North Adams. The creditors of the Arnold Print Works have been ordered to send in their claims against the company before Oct. 1, 1908, if they wish to recover. As yet the plan of distribution of the assets has not been completed, but it is said the receivers intend to make a 50 per cent. cash payment with part cash and part in one year notes, the remaining 50 per cent. to be paid in 5 per cent. bonds.

Massachusetts, North Billerica. Some departments of the Talbot Mills have returned to full time and it is understood that the whole plant will return to its old working schedule in the near future. The policy of curtailment has been followed since last November.

Massachusetts, South Attleboro. It is reported that a new worsted mill will soon be erected at this place. A tract of 18 acres has been purchased by a corporation and it is understood that the plans have already been prepared for buildings. It is further reported that it is intended to have the new mill in operation by January 1. The names of interested parties cannot be learned.

Massachusetts, Spencer. The Priscilla Woolen Co., manufacturers of woolen fabrics, are looking for a more desirable location than the one occupied by them at present, in which to manufacture their line. E. A. Evans is pres. of this company and W. B. Beach is treas.

Massachusetts, Waltham. The plant of the Boston Mfg. Co. is running on the full time schedule of 58 hours a week.

*Massachusetts, West Rutland. J. Otis Sibley of Worcester, who purchased the property of Fred R. Smith, the woolen manufacturer, is reported to have been acting for Francis Bacon, Jr., of New York, who held a mortgage on the property. Mr. Bacon was the original owner.

Mississippi, Jackson. Plans are being considered by the Farmers' Union, G. R. Hightower, president, for the establishment of a cotton bagging mill.

Mississippi, Kosciusko. It is reported that the Kosciusko Cotton Mills have been sold and that the new owners will resume manufacturing in the plant in the near future. The mills have been shut down for some time. The plant contains 12,000 ring spindles and 300 looms, suitable for the manufacture of white cotton goods, plain and fancy sheetings.

Nebraska, Kearney. There has been talk of starting the Kearney Woolen Mill, which has been idle for several years. The plant is fully equipped and could be started with very little trouble. It is understood that if the plant is not put in operation soon the owner will sell the machinery and dismantle the mill.

New Hampshire, Dover. At a meeting of the stockholders of the Cocheco Mfg. Co., held in the counting room, it was voted to reduce the par value of shares of stock from $500 to $100 and issue five new shares in the the place of every old one. A. B. Silsbee, elected treasurer of the company at the last meeting, resigned. The resignation was accepted and Hamilton De Forest Lockwood of Boston was elected to succeed him.

New Hampshire, Franklin Falls. Some of the departments of the Franklin Mills, M. T. Stevens & Sons Co., proprietors, are running to their capacity. Other departments are running more machinery as fast as operatives are employed. The mills have been on short time for several weeks.

New Hampshire, Keene. Repairs are being made to the dam in the mill pond from which the Faulkner & Colony Mfg. Co. secures water. As a result the plant is shut down for two weeks, at which time it is expected that the repair work will be completed.

New Hampshire, Laconia. The Geo. D. Mayo Machine Co. has increased the number of working days to 5 full days per week.

New Hampshire, Tilton. The Elm Mills Woolen Co. are running overtime and it is stated that the prospects are good for running two shifts of help. Dress goods, suitings and repellants are manufactured on 8 sets and 70 broad looms. O. G. Morrison is supt.

New Jersey, Camden. The Franklin Narrow Fabric Co., recently reported as having shut down its plant at 4th and Federal Sts., has gone into the

hands of a receiver and will be sold out at public auction. The plant contains 6 looms and several braiders, which were run on narrow fabrics and shoe laces.

New Jersey, Paterson. The Colonial Ribbon Co. has been incorporated with authorized capital stock of $60,000, divided into 600 shares, par value $100 each. The incorporators are Charles Slingland, Wm. E. Fischer and Geo. A. Fischer, all of Paterson. It is understood that the new company will manufacture ribbons and other silk fabrics. An office is maintained at 152 Market St.

New Jersey, Paterson. The Bentley Silk Co. has been incorporated with a capital stock of $125,000 by John Mathews, David M. Rhind and Edward A. Cunningham, all of this place. It is understood that the new corporation takes over the plant of Bentley Brothers, located in the New Barnett mill, which consists of 104 looms operated on tie silks.

*New Jersey, Paterson. It is reported that steps are being taken to organize the silk business of A. & M. Levy into a corporation, as it is believed satisfactory arrangements can be made with the creditors which will enable the company to take over and operate the old mill and the new one recently completed on Tatowa Ave. It is proposed to pay many of the creditors' claims in cash and others with preferred stock to secure them. In March, A. & M. Levy were petitioned into bankruptcy. Financial difficulties were largely due to the tying up of the firm's money resources in the new mill.

New Jersey, Jersey City. Articles of incorporation have been filed by the Savona Mfg. Co. The capital stock is $100,000 and the incorporators are Marshall Van Winkle, Francis V. Many and Frank Van Winkle. It is understood that the company will manufacture cotton fabrics and yarns.

*New York, Jamestown. No further change has been made in the ownership or management of the Jamestown Worsted Mills by the reported incorporation in May than was made necessary by the death of Mr. Samuel Briggs which occurred last January. Mr. Arthur K. Briggs succeeds his father as general manager. The officers are Elliott C. Hall, president; Alba M. Kent, vice president; Arthur E. Hall, secretary; and Arthur K. Briggs, treasurer and general manager. The capital stock of the Jamestown Worsted Mills is $2,500,000.

New York, North Tonawanda. It is reported that James Sweeney, Jr., of Buffalo, has bought property at this place which will be improved and used for textile manufacturing. This report is not verified.

New York, Syracuse. The Queen Fabric Co., a concern incorporated some time ago, will not do manufacturing and consequently will not require a plant. They do a yard goods business entirely through canvassing agents. Some reports of this company have given the impression that manufacturing would be engaged in.

*New York, Waterford. Samuel S. Munson, the Albany shirt manufacturer who purchased the mill of the Massasoit Co. with water rights, etc., states that he will probably utilize the property for the manufacture of wadding, but as yet no definite plans have been decided upon.

North Carolina, Charlotte. Report, which has been circulated to the effect that E. A. Smith, A. J. Draper and others of the Chadwick-Hoskins Co., were planning the organization of a $1,000,000 cotton mill to be located in North Charlotte has been denied.

North Carolina, Concord. Caesar Cone of Greensboro, receiver for the Odell Manufacturing Co., is to offer the entire property for sale and a syndicate representing the stockholders will buy it. A reorganization will follow. Parties interested in the concern include Henry P. Deschert of Philadelphia, D. B. Coltrane of Concord, and J. A. Long of Roxboro. Caesar Cone, receiver, has operated the plant successfully the past year

North Carolina, Greensboro. The Pomona Mfg. Co. has been summoned to show cause why they should not be adjudged bankrupt. F. N. Freeze, of Winston-Salem, and J. C. Watkins, of Greensboro, have been appointed temporary receivers to supersede receivers appointed in March by the State Court. It is stated that the mills owe $325,000. The plant of the Pomona Mfg. Co. contains 19,000 ring and 4,000 twisting spindles and 300 looms, which were operated on sheeting and drills.

*North Carolina, Mt. Airy. Following the reorganization of the Hazelhurst Cotton Mill Company on June 1, M. H. Sparger has been elected president; Otto Latsch, treasurer, agent and buyer; and A. C. Schumaker, superintendent. The capital stock is now $10,000. 10s to 12s warps, single and ply, in chains, balls, cones, tubes or skeins will be manufactured on 1,600 ring spindles and 300 twisting spindles. James F. White & Co. of New York are the selling agents. The plant is giving employment to 25 hands. Both steam and water power are used.

*North Carolina, Reidsville. No change will be made in the plant of the Edna Cotton Mills reported to be decreasing the capital stock from $135,000 to $125,000.

*North Carolina, Rockingham. The Roberdel Mfg. Co. advises that the increase in capital stock from $200,000 to $500,000 will not be used for the purpose of increasing the equipment at the present time.

Ohio, Elyria. The American Lace Manufacturing Co. is reported to have received a large number of new orders within the last few days and looks forward to a busy season.

Oklahoma, Tulsa. A report that E. R. Caswell will establish a mill for manufacturing sheetings, probably does not refer to plant for manufacturing the cloth.

Oregon, Albany. A. R. Jacobs, president of the Oregon City Mfg. Co. of Oregon City and his brother are in this place looking for a site suitable for woolen manufacturing. The residents of this place are requested to subscribe $100,000 toward the starting of a new woolen mill with the understanding that Mr. Jacobs will invest an equal amount.

Personals.

Mr. Hartley L. Lord has been appointed agent of the Bates Mfg. Co. of Lewiston, Me., succeeding H. L. Pratt, who retires on account of ill health, after a long and honorable service of 27 years. Mr. Lord has for the past two years been general manager of the Union-Buffalo Mills at Union, S. C., and before that was agent of the Chicopee Mfg. Co. at Chicopee Falls, Mass.

Wm. Reansenhousen has accepted the position as overseer of finishing at the Narragansett Worsted Company, Washington, R. I. He was formerly employed at the Pawcatuck Woolen Mills, Potter Hill, R. I.

Martin Welch, overseer of dyeing at Edward T. Steel Co., Bristol, Pa., has resigned. The vacancy has been filled by M. Teal, of Philadelphia. Mr. Welch has accepted the position as overseer of dyeing at the Central Worsted Company, Central Village, Conn.

J. C. Bothwell, overseer of carding at the Vassalboro Mills, North Vassalboro, Me., has resigned and accepted a position as overseer of carding and spinning at the Camden Woolen Company, Camden, Me. He was presented with a gold watch chain and Masonic charm by the help employed in the card room at his home on Saturday evening, June 27.

H. L. Henries has accepted the position as overseer of finishing at the Montrose Worsted Company, Woonsocket, R. I., succeeding F. H. F. Ballou, who resigned.

H. B. Hazen has resigned his position at the Rhode Island Worsted Company, Stafford Springs, Conn., in the pattern department.

John A. Hawkinson has accepted the position as cloth examiner in the finishing department of the Geneva Mills, Providence, R. I. He comes from Webster, Mass.

W. R. Rickman has been appointed superintendent of the Maginnis Cotton Mills, New Orleans, La., succeeding A. O. Hero, who resigned.

J. M. Kelly has been promoted to the position as second hand in the dressing department of the No. 2 Mill of the Fulton Bag & Cotton Mills, Atlanta, Ga.

Charles F. Faulkner, for the past three years superintendent of the Central Mills, Griffin, Ga., has resigned.

G. W. Burnett, overseer of carding at the Savannah Cotton Mills, Savannah, Ga., has resigned.

T. B. Wallace, superintendent of the Columbia Mills, Consolidated Cotton Duck Company, Columbia, S. C., has resigned.

Joseph Flemming, second hand in the spinning department at the Forestdale Mfg. Company, Forestdale, R. I., has resigned and accepted a similar position at the Whittenton Mfg. Company, Taunton, Mass.

David Welsh, overseer of finishing for Thos. Oakes & Company, Bloomfield, N. J., has resigned and accepted a similar position with the Waterloo Woolen Mfg. Company, Waterloo, N. Y.

John R. Fryes has accepted a position as night superintendent at the Sterling Cotton Mills, Franklinton, N. C.

James Self has been appointed president of the Greenwood Cotton Mills, Greenwood, S. C., succeeding J. K. Durst. Mr. Durst has been appointed vice-president.

Alpha Garth, superintendent of the Star Worsted Company, Fitchburg, Mass., has resigned and accepted a similar position with the Hope Worsted Mills Company, Louisville, Ky.

John W. Gledhill has accepted the position as second hand in the finishing department of Richardson, Weir & Company, Westmoreland Dye Works, Philadelphia, Pa.

Edwin Davenport, Jr., has accepted the position as overseer of dyeing and finishing at the Philadelphia Yarn Dyeing & Bleaching Company, Cleveland, O. He comes from Mankato, Minn.

Geo. Wilson, overseer of weaving at the Allenton Worsted Company, Allenton, R. I., has resigned and was presented with a gold watch and chain by the help in the weaving department, the presentation speech being made by R. Hazzard.

P. Y. De Normandie has been elected treasurer of the Androscoggin Mills, Lewiston, Me., to succeed O. H. Alford.

James Knox, overseer of dyeing at the Orrell Mills, Glendale, R. I., has severed his connection with that company.

R. H. Hartley has accepted the position as overseer of dyeing at the Allenton Woolen Mill, Allenton, R. I. He was formerly employed as second hand in the dye house at the Oneko Mills, New Bedford, Mass.

Walter Pike has accepted the position as overseer of dyeing at the Kent Mfg. Company, Centreville, R. I. He was formerly employed at Allenton, R. I.

Harry Smith has accepted the position as overseer of spinning at the Cheshire Mills, Harrisville, N. H., succeeding Jos. Scott.

Emile De Witte has accepted the position as overseer of dyeing for the Burlington Mills, American Woolen Company, Winooski, Vt.

Lucius L. Milliken, paymaster at the York Mfg. Company, died at his home in Saco, Me., at the age of 68 years. He was a trustee of the Saco & Biddeford Saving Institution.

F. S. Mosher, formerly superintendent of the Edgefield Cotton Mills, Edgefield, S. C., has resigned. The vacancy has been filled by R. L. Walker of Greenville, S. C. C. H. Fisher, formerly manager, occupies the place as treasurer of these mills.

H. O. Wellborn, superintendent of the Cox Mills, Anderson, S. C., has severed his connection with that company and accepted the position as general superintendent of five mills located at Columbia, Spartanburg, Lexington and Batesburg. His headquarters will be at Batesburg.

J. F. Quinn, overseer of finishing at the Terry Mfg. Company, Waterville, Me., has severed his connection with that company and has returned to his home in Bridgeton, R. I.

Robert C. Sears has severed his connection with Wendell P. Yerrington, 114 Federal St., Boston, Mass., wool dealer and associated himself with J. H. O'Brien, 246 Summer St.

C. P. Mosher, overseer of ring spinning at the Boott Mills, Lowell, Mass., has severed his connection with that company and was presented with a beautiful gold mounted brier pipe and an amber cigar holder. The presentation speech was made by Sylvia Vurnham.

Alfred Rivers has severed his connection as overseer of finishing for the Wm. Tinkhum Company, Harrisville, R. I.

James Henderson, superintendent of the Ludlow Mfg. Associates, Ludlow, Mass., with his wife and daughter, have taken a two months' trip abroad.

Charles Richards has accepted the position as overseer of carding at the Hudson Worsted Company, Hudson, Mass. He comes from Sterling, Conn.

David Welsh has resigned the position as overseer of finishing at Thomas Oakes & Company, Bloomfield, N. J. He was presented with a handsome clock by the help employed in the finishing department. The donors were afterwards Mr. Welsh's guests at a lawn party.

John T. Hume, overseer of ring spinning, spooling, warping and slashing at the Massachusetts Reformatory, Concord Junction, Mass., has resigned to accept a similar position with the Elmira Knitting Company, Elmira, N. Y.

G. G. Pratley, agent of the Victory Mfg. Company, Clinton, Mass., has severed his connection with that company and will spend two months abroad. H. Sewall of Monson, Mass., will succeed Mr. Pratley as agent of the Victor Mfg. Company.

T. D. Douglas has accepted the position as overseer of weaving at the Mayo Woolen Company, Millbury, Mass., succeeding Charles Garner, who resigned.

Geo. A. Phillips, overseer of dyeing at the Eagle Mills, Woonsocket, R. I., and Miss Elizabeth McKerracher were married Wednesday evening, July 1, at the St. James Episcopal Church. The ceremony was performed by Rev. Dr. Mitchell.

John C. Kollett has accepted the position as second hand in the machine shop for the Grant Yarn Company, Fitchburg, Mass. He comes from Wilton, Me.

Wm. E. Davidson has accepted the position as designer at the Excelsior Mills, Farnumsville, Mass. He was formerly employed at the Calumet & Hecla Company, Uxbridge, Mass., but more recently at Somerville, N. J.

J. F. Moriarty has accepted the position as superintendent of the Star Worsted Company, Fitchburg, Mass. He was formerly employed as superintendent of the worsted yarn department of the Globe Woolen Company, Utica, N. Y.

Harry Haigh, who accepted the position as overseer of dyeing at the Assawaga Company, Dayville, Conn., has resigned.

Daniel Schofield, formerly superintendent of the Harmony Grove Cotton Mills, Commerce, Ga., has been appointed general manager of the Textile Mills Corporation, New Orleans, La.

James Adams, formerly overseer of spinning at the Manetta Mills, Lando, S. C., has again accepted the position in charge of the spinning department.

W. D. McCombs has accepted the position as overseer of spinning and winding at the Scotland Cotton Mills, Laurinburg, N. C.

John Shanks has accepted the position as agent of the Waterloo Woolen Mfg. Company, Waterloo, N. Y., succeeding H. I. Buttery. Mr. Shanks comes from Philadelphia.

Ariel C. Thomas, formerly agent of the Boott Mills, Lowell, Mass., has purchased a farm between Franklin and Woonsocket, where he intends making his home.

R. Lincoln Lippitt is reported to have withdrawn from the Lippitt Woolen Company, Woonsocket, R. I.

Arthur A. Peterson has accepted the position as dyer for the Hadley Mills, South Hadley Falls, Mass. He comes from Lowell, Mass.

F. H. F. Ballou, overseer of finishing at the Montrose Worsted Company, Woonsocket, R. I., has resigned and accepted a position with the Pequea Mills, 22d and Spring Garden Sts., Philadelphia, as superintendent of the finishing.

Frank C. Morse has been appointed agent of the American Woolen Company's Riverside and Mascoma Mills at Lebanon, N. H.

Thomas F. Crow has been appointed agent of the Baltic Mills, Enfield, N. H.

George Carey has accepted the position as overseer of dyeing at the Wakefield Mfg. Company, Wakefield, R. I., it is reported.

J. C. Farmer has accepted the position as overseer of carding and spinning at the Great Falls Mills, Rockingham, N. C.

John Lloyd, superintendent of the Coronet Worsted Company, Mapleville, R. I., was presented with a silver trowel which was used in laying the corner stone of the new Mapleville Methodist Episcopal Church, presentation speech being made by Rev. W. B. Woodward, pastor of the Mapleville Church.

Thomas B. Wilcox, a director of the Union Cotton Mfg. Company, Fall River, Mass., and also connected with many business enterprises in New

Bedford, died at his home in New Bedford at the age of 87 years. He is survived by three sons.

Wm. Stevens Ray, who graduated from Andover in the class of '94 and Yale in the class of '98, died after a long illness of typhoid fever at the home of his parents in Brooklyn, N. Y. Mr. Ray was secretary of the New York Cotton Exchange at the time of his death.

C. H. J. Woodbury of Boston, Mass., secretary of the National Association of Cotton Manufacturers, was granted a degree of doctor of science at Dartmouth College recently. He received the same degree from the Union College, New York, in 1906.

Perley H. Richardson, assistant foreman in the weaving department of the Ann & Hope Mills, Lonsdale, R. I., has severed his connection with that company. James Pilkington has been appointed to fill the vacancy.

John D. Bullard has accepted the position as overseer of carding and spinning at the Spray Woolen Mills Co., Spray, N. C.

Theodore R. Plunkett, youngest son of W. B. Plunkett, Adams, Mass., has accepted a position as traveling salesman for the Standard Mill Supply Co., Providence, R. I.

Geo. N. Sanderson has severed his connection with the Union Underwear Company, New Richmond, Ohio, and accepted a position as overseer of knitting for the Monarch Underwear Company, Bowling Green, Ohio.

William Crossland, overseer of spinning and combing for the Bemis Mills, Watertown, Mass., has severed his connection with that company and accepted a position as superintendent of the Hillsborough Mills, Wilton, N. H.

Henry Ingham has accepted a position as overseer of spinning and combing for the Bemis Mills, Watertown, Mass.

E. C. Westbrooke, designer for the Rhode Island Worsted Company, Stafford Springs, Conn., has severed his connection with that company and returned to his home in Schaghticoke, N. Y.

John Brennan, overseer of carding at the Slater Mills, Jewett City, Conn., has severed his connection with that company and accepted a similar position at Pawtucket, R. I. He is succeeded at the Slater Mills by his brother.

V. C. Bellan has accepted a position as overseer of carding for the Perry Yarn Mills, Webster, Mass.

George H. Briggs, general superintendent for the New England Cotton Yarn Mills, Taunton, Mass., has resigned. He will be succeeded by E. S. Willey, recently superintendent for the Globe Mills, Fall River, Mass.

Albert D. Milliken, assistant superintendent at the Bennett Mill, New Bedford, Mass., succeeds E. S. Willey as superintendent of the Globe Mills, Fall River, Mass.

James Harring has been promoted to the position of assistant superintendent of the Bennett Mill, New Bedford, Mass., to succeed Albert D. Milliken. Mr. Harring held the position as overseer of spinning for a number of years.

T. G. Moser has accepted a position as overseer of weaving at Fort Mill, S. C., in the Milfort Mill. He comes from Highland Park Mill, No. 1, Charlotte, N. C. He succeeds C. H. Hurley.

W. A. Skidmore has taken charge of the spinning department at the Chadwick Mfg Co., Charlotte, N. C. He comes from Lancaster, S. C.

W. O. Tallent, superintendent for the Wehadkee Yarn Mill, Rock Mills, Ala., has resigned. His successor is G. W. McBroom.

W. W. Ware has been promoted to the position of overseer of spinning, spooling, twisting and winding for the Wehadkee Yarn Mill, Rock Mills, Ala.

Morris Bentley has been appointed boss wool sorter at the Providence Combing Company, Providence, R. I. He comes from Barre, Mass.

Edward Nelson, overseer of weaving at the H. W. Johns-Manville Company, South Brooklyn, N. Y., has severed his connection with that company. He was presented with a beautiful stick pin by the weavers employed in his department.

Charles S. Garner, overseer of weaving at the Mayo Woolen Company, Millbury, Mass., has severed his connection with that company.

John Livsey has accepted the position as overseer of carding at the Saunders Cotton Mills, Saundersville, Mass., succeeding L. A. Gilbert, who resigned. He comes from the Social Mill, Woonsocket, R. I.

John Reilley, overseer in one of the departments for the Atlantic Mills, Providence, R. I., has severed his connection with that company.

Geo. Wishart, formerly overseer of dyeing at the Assawaga Company, Dayville, Conn., has again entered the employ of this company. He is taking up his old position.

E. M. Walters has accepted a position as overseer of spinning at the Hoskins Mill, Charlotte, N. C., succeeding C. D. Skidmore, resigned.

George E. Templeton has accepted a position as overseer of finishing for Talcott Bros., Talcotville, Conn. Previous to taking the position here he was second hand for his father, Henry M. Templeton, at the Broad Brook Co., Broad Brook, Conn. Last month we made mention that he had taken a position at Vernon, Conn. This was a mistake.

E. C. Westbroke has accepted a position as designer for M. T. Steevens Sons Co., North Andover, Mass. He comes from Schaghticoke, N. Y.

Thomas Pennington has resigned as overseer of weaving for Uncasville Mfg. Co., Uncasville, Conn., and is succeeded by Samuel Goodfellow.

Oberdiah Butler has taken position as superintendent for Uncasville Mfg. Co., Uncasville, Conn. He comes from New York Mills.

Amasa Blackmer, formerly overseer of cone winding and twisting at the Cohannet Mills, Taunton, Mass., has accepted the position as overseer of warping and spooling at the Lorraine Mfg. Co., Pawtucket, R. I.

Former Mayor Henry C. Hallett, superintendent for the Belding Bros. Silk Mill, Northampton, Mass., has severed his connection with that company and will remove to California.

Walter Ayers, overseer of finishing at the Pioneer Woolen Mills, Pittsfield, Me., has severed his connection with that company. He was very popular with the help employed in his department and they regret very much his leaving. It is reported that he intends to take a position with the Wyandotte Soda Co., Wyandotte, Mich.

Albert Kay, night overseer of ring spinning at the Brighton Mills, Passaic, N. J., has been appointed day overseer in the same department, succeeding E. F. Wells who has resigned.

W. W. Pierce Watson, superintendent of the York Silk Co., Middletown, Conn., has severed his connection with that company. He has been appointed general superintendent of the Clifton Silk Mills, Weehawken, N. J.

Charles Shearn, for several years overseer of the doubling department for the Belding Bros. silk mill, Northampton, Mass., has been promoted to the position as superintendent, succeeding ex Mayor Henry C. Hallett who resigned.

H. D. Burns, overseer of carding and spinning at the Alabama Cotton Mills, Columbia, Ala., has severed his connection with that company.

G. A. Franklin, who has been superintendent of the Walhalla Mills, has accepted a position at the Cox Mills, Anderson, S. C., in the same capacity.

F. G. Cobb, who has held a position as superintendent of the Merrimack Mills, Huntsville, Ala., has resigned this position to become superintendent of the new duck mills at Kansas City, Kansas.

Charles Cockcroft has been appointed superintendent of the worsted yarn department for the Globe Woolen Co., Utica, N. Y., to succeed J. F. Moriarity.

R. S. Scarboro, formerly of the Buffalo Mills, Concord, N. C., is now overseer of spinning in the Granby Mill, Columbia, S. C.

L. C. Baker has accepted the position as overseer of weaving at the Richmond Mill, Columbia, S. C. He comes from Charlotte, N. C.

Tom Lawton, superintendent of the Rosamond Woolen Company, Almonte, Ontario, Canada, has severed his connection with that company and is succeeded by Harry Brown, who has held the position as designer for this mill.

John P. Craig has accepted the position as second hand in the carding department for the Fisher Mfg. Co. He comes from Lowell, Mass.

W. Roland Holt has accepted the position as general second hand in the carding department for the Chicopee Mfg. Co., Chicopee Falls, Mass. He was formerly employed at West Warren, Mass.

C. E. Tallis, overseer of carding at the Sawyer Mills, Dover, N. H., has severed his connection with that company.

R. Johnson, who has been designer at the Taconic Mills, Pittsfield, Mass., sails for a six weeks' trip to Scotland on August 1 to visit his native home.

Guy G. Paris, for the past two years second hand of the carding and combing department of the Lawrence Mfg. Company, hosiery yarn department, Lowell, Mass., has accepted the position as overseer of carding at Turner's Falls, Mass.

L. J. Young has been appointed cotton classer for the Skenandoa Cotton Co., Utica, N. Y. He was formerly employed at Valleyfield, P. Q., Canada.

James Welch has been appointed second hand in the dyeing department at the Lincoln Mills, Pascoag, R. I.

F. M. French, master mechanic of the Berkshire Mills, Adams, Mass., has resigned his position and it is reported that he has accepted a better one in the West.

William Brennan, overseer of carding at the City Mfg. Co., New Bedford, Mass., has severed his connection with that company. His successor is Edward McManus, who was formerly overseer at No. 1 Mill of the same company.

Edward L. Burdick has accepted the position as overseer of carding at the No. 1 Mill of the City Mfg. Co., New Bedford, Mass. He comes from the Nonquit Spinning Co.

T. F. Brennan, overseer of carding for Wolstenholme & Clark, Manayunk, Phila., Pa., has severed his connection with that company.

Andrew Smith, overseer of beaming at the West Warren Cotton Mills, West Warren, Mass., has resigned and accepted a position at Norwich, Conn.

Isaac Edmundson, designer at the Moosup Mills (American Woolen Co.), Moosup, Conn., has left for his home in England where he will spend a few months. He will also visit Scotland and Ireland.

Samuel Winterbottom has accepted a position as engineer for the Forestdale Mfg. Co., Forestdale, R. I.

James F. Quinn, overseer of finishing for the Perry Mfg. Co., Waterville, Me., has resigned. His successor is Henry Quinn, formerly finisher at the Narragansett Worsted Co., Washington, R. I.

J. R. Federline, for several years overseer in the Massachusetts Mills, Lindale, Ga., has taken charge of carding and spinning at the Kansas City Cotton Mills, Kansas City, Kansas.

Martin O'Toole has severed his connection with the Scotia Worsted Co., Woonsocket, R. I., where he held the position as overseer of finish-

ing. He was formerly employed at the Dunn Worsted Co. in the same city.

E. C. Fales has re-entered the Madison Woolen Co., Madison, Me., as loom fixer. He has been employed as fixer at the cotton mill at Lisbon, Me.

George N. Smith has resigned the position as overseer of spinning for the Franklin Woolen Mills Co., Franklin, Ky.

Edward Nelson has accepted the position as superintendent for the W. M. Sharp Company, Binghamton, N. Y. He comes from Lowell, Mass.

H. J. Forsyth, superintendent of the Springstein Mills, Chester, S. C., has resigned. His successor is R. E. Henry.

W. E. Tucker has accepted the position as overseer of carding at the Selma Cotton Mills, Selma, N. C.

O. K. Wilson, superintendent of the Orangeburg Mfg. Co., Orangeburg, S. C., has severed his connection with that company. He leaves the cotton mill business after a successful career of thirty years to engage in the coal business.

Captain David Clark, for some time connected with the management of the cotton mill at Jonesboro, N. C., has succeeded R. B. Wilson as editor of the American Textile Manufacturer of Charlotte, N. C.

H. F. Smith, general superintendent of the Riverside and Toxaway Mills, Anderson, S. C., but more recently connected with the organization of the Ridgeview Cotton Mills, Newton, N. C., has accepted the position as superintendent of the Anchor Mill, Huntersville, N. C.

R. S. Scarboro, overseer of spinning at the Buffalo Mills, Concord, N. C., has resigned and accepted a similar position with the Granby Mills, Columbia, S. C.

Justin H. McCarthy has accepted the position as master mechanic and is in charge of the electric lighting plant for the Berkshire Mfg. Co., Adams, Mass. He comes from Chicopee, Mass.

Walter Magson, superintendent of the Crescent Worsted Company's Mill at West Concord, N. H., has severed his connection with that company.

Benjamin Brierly, boss printer at the Cocheco Print Works, Dover, N. H., has severed his connection with that company. Farrell Coyle, formerly of the Windsor Print Works, North Adams, Mass., is his successor.

John H. Wilcox has been elected to the membership of the Board of Directors of the City Mfg. Co., New Bedford, Mass., succeeding the late Thos. B. Wilcox. He is 23 years of age and the youngest mill director in the country, is a son of Benjamin Wilcox, treasurer of the City Mfg. Company and a grandson of the late Thos. B. Wilcox.

R. F. Culver, chemist at the Arnold Print Works, North Adams, Mass., has severed his connection with that company to accept the management of the Holliston Mills, Norwood, Mass. His successor is Raymond Clogston, who has acted as assistant to Mr. Culver.

Geo. H. Milner, overseer of mule spinning at the Ashland Cotton Company, Jewett City, Conn., has resigned.

DEATHS.

James E. Hooper, president of the Wm. E. Hooper & Sons Company, manufacturers of cotton duck, died at his summer home at Rehoboth Beach, Delaware, in his 68th year.

Wm. T. Legg, 62 years of age, and who has been an overseer for a number of years at the National & Providence Mills, Providence, R. I., died at his home in Olneyville, R. I. He was one of the best known residents of that section.

Samuel Greer, for a number of years superintendent of the May Mfg. Company, Aston Mills, Pa., died Sunday, July 5.

George A. Wagner died at his residence, 179 Rutledge Ave., Charleston, S. C., July 15, after an illness of several months. He was president of the Royal Bag & Yarn Mfg. Co. and the success of this industry was due to his ability. He was also a director of the Bank of Charleston and vice president of the Winnsboro Granite Co. He is survived by two daughters and one son.

Francis McBride, formerly superintendent for many years at W. C. Plunkett & Sons' cotton mill, Adams, Mass., died July 18 at his home in Holyoke. He is survived by a wife and daughter. He was a member of the Berkshire Lodge of Masons.

Thomas Wolstenholme, late president of Thos. Wolstenholme, Sons & Co., Inc., died at his home, Greene and Upsal Sts., Germantown, after a second stroke of paralysis. Mr. Wolstenholme was born in Bury, England, in 1852, and came to this country 29 years ago, settling in Philadelphia, where he formed a partnership with Geo. Campbell. Since that time his business record shows remarkable success and has been appreciated by a number of Philadelphia institutions. Mr. Wolstenholme was a director in the Bank of Commerce, president of the Worsted Spinners' Association, president of the Quaker City Cut Glass Co., an officer in the Manufacturers' Club and an active member of the Germantown Automobile Co. He is survived by his widow and five children. The funeral was held Thursday, July 23, from his home.

Wm. Berkinshaw, overseer of finishing at the Aetna Mills, Watertown, Mass., for the past ten years, died at his home on Pleasant St., Watertown, Saturday, July 25. Mr. Berkinshaw had been in poor health for the past few months and had been obliged to give up work some time ago, but thought that he would rally.

New Publications.

[Any work noticed under this head can be obtained through the office of this journal.]

The Cotton Weaver's Handbook; by Henry B. Heylin; 318 pages; 5 by 7 1/2 inches; J. B. Lippincott Co., Philadelphia, Pa. Price, $2.50.

The first three chapters of the book give a very concise and clear outline of weaving construction. Chapter four is devoted to the different types of the English power loom. The author next takes up cloth analysis and estimating cost. After it the following subjects claim attention: Division of the Cotton Industry in England; Yarn for Manufacturing Purposes; The Selection of Warp Yarn and Yarn Testing; Reed and Harness Calculations; Important Labor Units in a Weaving Mill. The book contains many illustrations and will prove a very useful handbook for the weaver, designer and manufacturer.

Grammar of Textile Design; by Harry Nisbet, Weaving and Designing Master, Municipal Technical School, Bolton, England, 490 illustrations; 265 pages, 5 1/2 by 8 1/2. Price $3.00.

This is the second edition of a work that has met with a very favorable reception from the textile trade. The following abstract of the table of contents shows the scope of the work, which forms a valuable hand book for the designer and weaver: General Principle of Fabric Structure. The Plain, Calico or Tabby Weave. Twill and Kindred Weaves. Diamond and Kindred Weaves. Bedford Cords. Backed Fabrics. Fustians. Terry Pile Fabrics. Gauze and Leno Fabrics. Tissue, Lappet and Swivel Figuring, Ondule Effects and Looped Fabrics.

The Blue Book; Davison Publishing Co., 401 Broadway, New York, N. Y. Price, $4.00.

The 1908-09 edition of this publication has been received and shows the usual careful preparation and attractive features. A directory of the different textile manufacturing establishments in the United States and Canada is given under various classifications, and auxiliary lines are included, making a very complete directory as in former years.

Removing Steam from Dye Houses (Die Entneblung von Faerbereien); by Turin and Lassaux. 40 pages, 6 by 9. Verlag von Friedrich Vieweg & Son, Braunschweig, Germany. Price $1.00.

This work, which originally appeared in French, is a study of the question by two French engineers, Turin and Lassaux, made by the direction of the Union des Industries Francaises de la Teinture. The subject is discussed under the following heads: The Cause of Vapor in Dye Houses. Conditions that Influence the Problem of Removing Vapor from Dye Houses. The Construction of Various Dye Houses Inspected by the Authors.

The authors visited 100 dye houses in various parts of France in order to obtain material for their report. The text is in German.

A Technical Cyclopedia (Lexikon der Gesamten Technik); by Otto Lueger and associates; Deutsche Verlags-Anstalt, Stuttgart and Leipzig, Germany; complete in 40 parts; 7 1/2 by 11; price $100.

We have received parts 29 and 30 of this elaborate work. It has already run through one edition and has been carefully revised and brought up-to-date by the editor, assisted by a large corps of technical experts. It is a valuable book of reference to the engineer, student or general reader. There are a large number of illustrations and the text is in German.

The Influence of the Direction of Twist on the Appearance of Cloths (L'Influence du Sens de la Torsion des Fils sur l' Aspect des Tissus); by Charles Vingue, Professor of Weaving at the National School of Industrial Arts, Roubaix, France; 28 pages, 6 1/4 by 9 1/2; published by the author.

The important question of how the appearance of a fabric is affected by the direction of the twist in the yarn has been studied carefully by Prof. Vingue, who gives in this book an outline of the results of his work. The text is illustrated with many drawings showing the effects produced by changing the direction of twist and twill on different weaves. The text is in French.

Directory of Lancashire Cotton Spinners and Manufacturers; by John Worrall, Oldham, England. 9 1/2 by 11 1/2. Price $2.50 in the United States.

The 1908 edition of this well-known directory appears in the usual form, having been brought up to date to include the large number of mills that have been put in operation in Lancashire during the past year.

Business Literature.

Lathes, Valve-Milling Machines and Oil Separators. American Tool and Machine Co., Boston, Mass.

This is an attractive catalogue of 38 pages in which various types of lathes, valve-milling machines and oil separators are described and illustrated.

The Year Book for Colorists & Dyers; H. A. Metz & Co.; 387 pages, 5 by 7 1/2.

The tenth edition of this annual which has recently appeared contains the usual standard reference tables and regular sections as follows: Identification of Dyestuffs; Patents for the year 1907; Notes on Processes; New Colors, etc.; Educational; List of Dyestuff Makers and Methods; Miscellaneous Notes.

Open Tank and Brush Treatment; Carbolineum Wood Preserving Co., New York.

This bulletin, which is a reprint from the Street Railway Journal, deals with the open tank and brush treatment for preserving ties and cross arms. It contains 16 pages and has a large number of photographs illustrating the method.

Though Lost to Sight, to Memory Dear.

Manchester, July 13.—President Roosevelt has sent to President Macara of the International Cotton Federation, a signed portrait of himself in appreciation of his international work for the cotton trade.—Special Cable Despatch to the Sun.

Decline of the Natural Indigo Industry.

In supplying the following information concerning the protection of indigo in British India, Consul-General William H. Michael, of Calcutta, reports that while the crop of 1908 is not as encouraging as it might be, the hope of saving the industry is not lost by the planters.

The total amount of indigo marketed in the fiscal years ended March 31, 1907 and 1908, was 2,240,000 and 2,180,000 pounds, respectively. These figures show a falling off of 60,000 rounds in the fiscal year 1908, but the season was droughty for all crops, and but for irrigation the indigo crop would have been a complete failure.

The strike on the East Indian Railway interfered with prompt delivery of indigo in the Calcutta market, and sales were therefore limited. In fact the large Russian demand went by, and buyers for that country went to the London stock, thus causing the prices, which were good early in the season, to depreciate. The planters were therefore driven to the necessity of shipping to London and consigning to their own account. The demand of England and the United States for middling quality slackened, as did also the continental demand for high-grade indigo, and as a consequence the India producers were placed in an unfortunate position.

The experience of indigo planters satisfies them that, for the present at least, the demand for natural indigo will be for purposes to which the synthetic dye cannot be applied. During the six years ended March 31, 1908, the decline in the amount of indigo exported from India was 80 per cent. in quantity and 84 per cent. in value—from 8,975,000 pounds, valued at $6,174,188, in 1902, to 2,180,000 pounds, valued at $2,334,924, in 1908. Despite this great falling off, however, the indigo planters are hopeful. The belief is prevalent among them that careful selection of seed, improved methods of cultivation, and a more scientific method of extracting the indigo will enable them to undersell the artificial article and thus restore the product to its former importance.

Election of Officers.

The following officers of the Crocker-Wheeler Company, Manufacturers and Electrical Engineers, of Ampere, N. J., were elected July 10: President, S. S. Wheeler; vice president, Gano Dunn; second vice president, A. L. Doremus; chief engineer, Gano Dunn; secretary, Rodman Gilder; treasurer, W. L. Brownell; assistant secretary, J. B. Milliken; assistant treasurer, G. W. Bower.

Water Softening.

Among the many improvements that are being made by the Tennessee Coal, Iron & Railroad Co., at the Ensley, Ala., plant since passing into the hands of the United States Steel Corporation, is the providing for a supply of soft, clear water for boiler feed. A contract has just been entered into with Wm. B. Scaife & Sons Co., of Pittsburg, Pa., to remodel their present water softening and purifying system and convert it into a We-Fu-Go system, intermittent type, with a capacity for 35,000 h. p. The Wm. B. Scaife & Sons Co., in installing the We-Fu-Go system, will discard all apparatus except four large tanks in use with the present system, and after they complete their work the system will consist essentially of eight large treating and settling tanks equipped with their patented mechanical stirring devices, and eight large patented mechanical gravity filters. The filters will be installed in a building, and in the same building will be located all the valves, etc., for operating the system. The arrangement of the piping will be such that any or all of the treating tanks can supply water to any or all of the filters. It is claimed that this installation, having a capacity of 3,360,000 gallons of water per 24 hours, will be the largest intermittent type water softening and purifying system in the world.

The water taken from Yellow Creek in its natural condition contains about 15 grains per gallon of scale-forming solids in solution. By means of the improved softening system which is being installed by Wm. B. Scaife & Sons Co., the scale-forming solids in solution will be reduced to a minimum and the formation of scale in pipe lines, heaters and boilers, will be entirely prevented.

This system will be the thirty-second plant installed for the steel corporation by Wm. B. Scaife & Sons Co. The most recent installation they have completed is a 25,000 h. p. We-Fu-go system for the American Steel & Wire Co. at their Newburgh Works, Cleveland, Ohio.

Another Attack on the Wool Supply.

An interesting controversy is being waged in West Cumberland as to whether owls do or do not kill lambs. The supporters of the Fell Foxhounds allege that all the lambs slain on the hills are not killed by Reynard, some being victims of the owl. Bird lovers, on the other hand, maintain that the owl, a true farmers' friend, is not guilty of the charge. Mr. George Tickell, a fell hunter for forty years and a Deputy Master of the Blencathra Hunt, of which the Speaker is Master, writes of shooters waiting for a fox hearing a lamb give a terrible and unusual cry in the darkest part of the night. At daybreak the lamb was found dead "with a hole pierced right down the head just large enough to take a pencil." Another lamb was found killed in exactly the same way, and Mr. Tickell thinks the owl's strong beak "quite suitable for the job." He is satisfied the culprit was either an owl or some other bird.—The Manchester (Eng.), Guardian.

Aniline Poisoning.

Dr. Lake, the Home Office Medical Inspector of Factories, attended a coroner's inquiry held at Wigan on Friday relative to the death of a dyer named John Ash, 21, of 18, Mariebonne, Wigan, who had died in the Wigan Infirmary from the effects of aniline poisoning.

Evidence was tendered to show that Ash was employed at the Haigh Dyeworks, and that he was in the act of taking the plug out of a cask of aniline oil when the contents of the cask splashed over his face and clothes. He reported the mishap, and after washing himself continued working for half an hour. He then walked home, but had to stagger into the house, where he complained of having been "gassed." A doctor was called and he was removed to the Infirmary.

Mr. J. Wilson, who represented the relatives, cross-examined the workmen who came forward as witnesses, and elicited the statement that the employes did not know that Ash was being gradually poisoned during the time he was wearing his wet clothes; in fact none of them knew the danger Ash was running by continuing to wear his clothes after the accident.

Dr. Edmondstone, house surgeon at the Infirmary, stated that Ash was unconscious when admitted to the institution, and his coat, vest and shirt were wet with aniline oil. The man's skin was livid and his fingers and hands were stained. When he tried the man's blood he found it to be black. From the post-mortem he came to the conclusion that death was due to aniline poisoning, which had been absorbed through the skin.

Dr. Lake said the attention of the Home Office was first called to the dangers of aniline about four or five years ago in consequence of complaints from Manchester and Bradford dyeworks. He made an investigation and examined over 100 workers and found that the evidence of illness was clearly established, that illness being caused both by the fumes from aniline and from the oil being absorbed into the skin. The symptoms were greenish discolorations of the skin, drowsiness, palpitation of the heart, and indigestion, but there was no case like the present one, of sudden illness and death. As a result of the inquiry a memorandum was issued from the Home Office requesting that steps should be taken to prevent, as far as possible, chronic forms of poisoning by having proper ventilation, provision for food and overalls, so that clothes could be changed when wet with aniline. This particular case was a most unusual one, and he was convinced it was not incidental to dyeworks—it was an accident resulting from the method adopted of emptying the aniline oil from the tank. The aniline should have been got out by means of a tap so as to prevent splashing. There was more danger by the absorption of aniline into the skin than there was from inhalation of the fumes. If Ash had changed his clothes immediately he would probably have recovered.

A verdict of "Accidental death" was returned, and the jury recommended the company to take into consideration Dr. Lake's suggestions.—Manchester (Eng.), Guardian.

Reed Works.

Messrs. Stewart & Sons, who are no doubt one of the oldest manufacturers of looms reeds in Philadelphia, if not in the country, have recently imported new and up-to-date machines for making reeds. They claim that one of them is the largest of its kind in the country. With their present equipment, the plant is the largest reed works in this vicinity. In order that they might have sufficient room for the installation of the machines the firm has been compelled to increase the floor space and are now occupying the entire third floor of the building at 1627 N. Mascher St., Philadelphia, Pa., where, in addition to manufacturing looms reeds, they are also handling a line of lease reeds and slasher combs, heddle frames, beamers' raithes, dobby bars and dobby pins. In order that manufacturers may keep themselves posted as to the prices of the different lines handled by them they have had printed, for free distribution, a price list which they will be glad to forward to anyone an application.

Removal Notice.

Farbenfabriken of Elberfeld Co. have moved from Lafayette St., New York, to more commodious quarters, occupying the whole building, 117-119 Hudson St. The first, or street floor, is used by the shipping and color departments, while the second and third floors contain the laboratories and storage rooms. The accounting room and private offices are all on the top or fourth floor, making them light and airy.

The First Bales at Liverpool.

At the new Liverpool Cotton Exchange recently serious business was suspended for a charitable auction sale. The purchasers of the first three bales of 1908-9 cotton from Texas, Houston and Galveston had presented them to the Association for sale by auction, the proceeds to be devoted to different deserving charities. The donors, to whom Mr. J. P. Reynolds, as president of the Liverpool Cotton Association, extended hearty thanks, were Mr. Alec. Wood (Messrs. Wood, Stewart & Co.), Messrs. Ellison & Co., and Mr. M'Fadden. The role of auctioneer was sustained with great humor by Mr. John Tipton, a popular Liverpool cotton broker. Bidding for the first bale commenced at £10, rapidly progressed to £30, and the bale having been "knocked down" to the President for £33, the auctioneer brought his large hammer down with a mighty blow upon the table in front of him, shivering that article of furniture into splinters. The second bale, which was also purchased by the President, realized £20. Bidding for the third bale advanced to £25, at which figure it was disposed of to F. Zerega & Co. —Manchester Guardian.

Christopher P. Brooks, of New Bedford, Mass., has returned from a four months' trip abroad, having visited the Panama Canal, the cotton growing sections of the West Indies and Central America and the cotton manufacturing districts of Europe.

Paint for Bleaching Kiers.

The Robert D. Mason Company,
Bleachers and Dyers.
Pawtucket, R. I., July 13, 1908.

Ferrubron Metal Paint Co., New York.

Gentlemen:—We have your favor of the 10th inst. regarding the use of Ferrubron on caustic acid tanks. Replying would say that we used the paint for painting our iron kiers, and we use three kiers in the bleaching and three in the dyeing department for boiling out our goods, each one holding about 4,000 pounds of yarn. When we painted them this spring, as we do every spring, we tried the Ferrubron paint, and it stands pertectly well on the three kiers in the dye house, but on the kiers in the bleach house where the boiling caustic liquor boils over, it takes off the paint. It is nothing more than the writer expected that it would, as the paint is mixed with linseed oil, and of course we know that caustic soda will dissolve linseed oil. It keeps the remainder of the kiers, however, in very nice condition, and we are perfectly satisfied with its working. What we wanted it for principally, is for the painting of the sprinkler pipes in our dye and bleach house, which are exposed to the fumes of the chemicals used in dyeing, and also steam from the boiling boxes, and for that purpose it has lasted better than any preparation that we ever have used.

We are perfectly satisfied with it, and believe that painting our pipes once a year will prolong their life sufficiently so that it will be a paying investment for us to use Ferrubron paint.

Very truly yours,
The Robert D. Mason Co.,
W. J. Burton, Sec.

Depression in Europe.

The London Commercial Intelligence notes dull times in the French textile trade. At Roubaix all branches of the industry—spinning, weaving, combing and dressing—are depressed and thousands are unemployed. At Halluin, near there, 30 to 35 per cent. of the linen looms are idle. At Lille the nonworkers are daily increasing. At Lyon and surroundings the greater part of the weavers are working three days a week, while out of 15,000 workpeople at Cambresis, the center of the lawn and cambric industries, over 6,000 have been out of employment since December. Relief committees are being formed, and the French Parliament has been asked for $100,000 aid.

The Massachusetts Fan Co., Watertown, Mass., are furnishing ventilating apparatus to the Edison Electric Illuminating Co., Boston, Mass.; Wm. Filene Sons Co., Boston, Mass.; American Lace Co., Elyria, Ohio; Globe Steam Laundry, Portland, Me.; and heating apparatus for the Spokane, Wash., Post Office; McKinley School Building, Youngstown, Ohio, and Mason Machine Works, Taunton, Mass.

Tangol on Yarns.

Among the claims made for Tangol, the new size for yarn, brought in the market by the Arabol Manufacturing Co., 100 William St., New York, are the following: It makes the warps of cotton yarns stronger and smoother. It prevents the chafing of the heavier yarns and the rubbing off of China clay. It will give linen yarns a tighter weave and a better turn off per loom. It will make it stronger and less liable to break. To dress linen it gives a full mellow finish. With woolen and worsted warps there will be less brittleness and breakage where Tangol is used instead of glue. No tallow is needed when a mixture contains Tangol.

Dangers of "Shuttle Kissing."

The medical officer for Oswaldtwistle (Eng.), in his annual report, draws the attention of weavers to the danger of contracting infectious diseases from the practice, called "shuttle kissing," of sucking the weft through the eye of the shuttle. Almost daily, the doctor says, looms are vacated through sickness or other causes; and without any attempt at disinfection or even simple cleansing of the shuttles, which, in many cases, show a distinct ring of filth round the eye, another weaver commences work on the same looms. In this way diphtheria, consumption, and other diseases could be communicated from one operative to another. A prominent mill manager was strongly of opinion that in all mills it should be made a rule that whenever a fresh weaver commenced to work at looms the tackler should see that the shuttles were properly cleaned round the eyes. Simple scraping with sandpaper and sponging with antiseptic lotion in and round the eye would entail practically no trouble or expense, and would at least tend to reduce the dangers.

Demand for Winders.

The business of Jacob K. Altemus, 2824 North 4th St., Philadelphia, manufacturer of machinery for all kinds of yarns, has not been affected by the late depression, which happily is now passing. On the other hand large numbers of manufacturers seem to have taken advantage of the let up in rush orders to improve their plants. Especially have machines for rewinding yarns become recognized as a factor to meet the demand for increased shuttle capacity. In many cases the increase in the amount of yarn wound on a bobbin is from 20 to 30 per cent. above the amount now worked upon. The advantages in production more than pay the cost of rewinding, in addition to giving greatly improved product in many cases. A number of orders for winding machines for skeins have also been received. In addition to the above machines, Jacob K. Altemus builds a general line of winders, warpers, spoolers, dresser spoolers, etc. His latest warp splitting machine has new features which deserve special attention. A classified description circular of machines used in every line

of textiles will be sent on request. Mr. Altemus attributes the good business done by him in the last few months to the appreciation by the trade of machinery that always gives satisfactory results.

Sales of Small Curtis Turbines.

The increasing use of small Curtis steam turbines is strikingly shown by an inspection of a partial list of turbines under 500-kw. capacity which up to the present time have been installed by the General Electric Company or are under construction.

Of the 570 odd turbines listed, representing a total capacity of about 37,000 kw., seven per cent. are for the export trade. The remainder are intended for domestic service in central stations, marine work, laboratories of educational institutions, power and lighting plants for hotels and office buildings, laundries, mines, printing establishments and in every branch of manufacturing. It is interesting to note the widely different industries in which small Curtis steam turbines are used. Among the list are woodworking plants, ice plants, textile mills, breweries, tanneries, flour mills, shoe factories, paper mills, foundries, iron and steel mills, distilleries, chemical plants, machine shops, textile mills, and ammunition manufacturing plants.

Turbines for train lighting are finding a ready market and it is interesting to note that the leading railroads are using this method of train illumination. The latest application of moderate size Curtis turbines is for driving fire pumps in which capacity they have been very satisfactory. On board ship where a compact generating unit is required, small turbine lighting sets are also rapidly coming into favor.

A Cotton Picking Machine.

Those best informed regarding industrial conditions in the American cotton belt are substantially in agreement that the further development of the crop necessitates an increase in the labor supply, or a reduction in the amount of labor required to cultivate and gather the cotton. The last named means would be brought about by an efficient cotton picking machine to take the place of the hand work by which the entire crop is now gathered. A cotton picker has recently been brought before the public by the Vacuum Cotton Picking Machine Co., St. Louis, Mo. It is the invention of John S. Thurman, and is described by the builders as follows:

The Thurman system of gathering cotton consists of the application of practically the same principle as is used in the house-cleaning device, by the same inventors. A motor driven by gasolene is mounted on a wide-wheeled truck. The operation of this engine produces a vacuum in a tank connecting with a receptacle for the gathered cotton. Two or more lines of hose, each 100 feet long, connect with the cotton tank. At the end of each hose is a specially-constructed and patented nozzle, controlled by the operator. This nozzle placed near the opened boll of cotton, draws the cotton into the hose and deposits it in a receptacle on the wagon. The boll is cleaned of every fiber of cotton and the vacuum is so delicately adjusted that it will draw into the receptacle only the clean cotton with no leaves or trash. A strip 200 feet wide, 100 feet each side of the wagon, can be gathered with the machine.

The machine does not require expert operators to handle the nozzle and any man or boy can run the engine. Two horses or mules can draw the machine over the field. The hose is so adjusted that if dropped from the operator's hand no dirt will be drawn in. The cotton on the tallest and shortest plants is gathered with equal ease. When the receptacle of the machine is full it is emptied readily into sacks or on a tarpaulin. Two men will gather 1,400 pounds of cotton in a day working ten hours, which is easily seen to be an enormous saving in labor.

The Thurman machine is now on exhibition at the company's headquarters at St. Louis, where it is attracting much attention.

Direct Driven Electric Hydro-Extractor.

Dienelt & Eisenhardt, Howard and Thompson Sts., Philadelphia, have recently placed on the market a machine for extracting water from fabrics or yarns by the centrifugal action of a perforated basket rotated by an electric motor. The armature of the motor is placed upon the same vertical shaft as the basket, but above it. The stationary portion of the motor is supported in a vertical position on a substantial arm extending up from one side of the tub, leaving almost the entire circumference of the basket open for loading and unloading. These machines are made with a wide range of sizes and styles of baskets and are adapted for either direct or alternating current electric circuits. An illustrated description will appear in an early issue.

The New Finish on Worsteds.

With the new permanent finish on lustered, non-cockling worsteds and woolens, made possible by the decatizing apparatus sold by L. H. A. Schwartz & Co., Boston, Mass., it looks as if the market for these goods would be greatly improved during the coming season.

A New Mill.

Another indication of the increasing business revival is to be found in the contract that has just been awarded by Harry E. Danner to Frank B. Gilbreth, general contractor, New York, for a cotton mill which is to be erected at Paterson, N. J., at a cost of $100,000. Construction is to begin immediately. This project has been in contemplation for some time.

Recent Textile Patents.

BOBBIN AND WHIRL. 891,814. Joseph W. Collins, Pawtucket, R. I.

BRAIDING MACHINE. 893,810. Samuel A. Neidich, Philadelphia, Pa.

BRAIDING MACHINE. 894,022. Bernhard Lepperhoff, Bermen, Germany.

CARDING MACHINE. 893,290. John J. Wehinger, Worcester, Mass.

CLOTH MARKET. 893,518. Webster F. Keller, Cincinnati, O.

CLOTH-CUTTING MACHINE. 892,460. Adolph Spielman, Philadelphia, Pa.

DRYING MACHINE. Rotary. 892,901. Walter M. Schwartz, Philadelphia, Pa., assignor to Philadelphia Textile Machinery Co., Philadelphia, Pa.

DYEING FIBROUS Material. Apparatus for. 893,986. Robert Dawson, Framingham, Mass.

DYEING. 893,384. Arthur Schlegel, Ludwigshafen-on-the-Rhine, Germany.

DYEING AND BLEACHING Apparatus. 892,898. Jean Schmitt, Belfort, France, and Ernst Handschin, Masmuenster, Germany.

FABRICS. Fringed Edging for. 892,889. Martin O. Rehfuss, Philadelphia, Pa.

HUMIDIFIER. 892,778. Henry C. Townsend, Anderson, S. C.

KNITTING MACHINE Feeding Device. 892,663. Joshua D. Hemphill, Pawtucket, R. I., assignor to Mayo Knitting Machine & Needle Co., Franklin Falls, N. H.

KNITTING MACHINE. Straight. 892,933. Wm. H. Burson, Chicago, Ill.

KNITTING MACHINES. Pattern Mechanism for Straight. 892,902. John Schutz, New York, assignor of one-third to Theodore Haebler, New York.

KNITTED HOSIERY. 893,663. Robert W. Scott, Philadelphia, Pa.

LOOM. Narrow-ware. 894,067. Otto W. Schaum, Philadelphia, Pa.

KNITTED FABRICS. Manufacturing. 893,356. Herbert L. Nelke, Philadelphia, Pa.

KNITTING MACHINE. 893,407. Kirk H. White, Oswego, N. Y.

KNITTING MACHINE Cam-Adjusting Mechanism. 891,809. George L. Ballard, Norristown, Pa., assignor to Wildman Mfg. Co., Norristown, Pa.

LOOPING MACHINES. Thread Slackening Device for. 892,007. Wm. Payne, Philadelphia, Pa.

LOOM PATTERN Mechanism. 892,926. Henry Bardsley, Providence, R. I.

LOOM SHUTTLE. 892,881. Ephraim E. Orrell, Ware, Mass., assignor to Draper Co., Hopedale, Mass.

LOOM SHUTTLE Box Motion. 892,727. Elbridge R. Holmes, Worcester, Mass., assignor to Crompton & Knowles Loom Works, Worcester, Mass.

LOOM WARP Stop Motion. 12,830. Alonzo E. Rhoades, Hopedale, Mass.

PILE FABRIC and Weaving Same. 892,517. Alfred Heald, Philadelphia, Pa.

ROVING MACHINES, etc. Flier for. 892,863. Fay H. Marton, Boston, Mass., assignor to Textile Machinery Co., Boston, Mass.

SPINNING AND TWISTING Machine. Stop Motion. 892,982. Sam Dean, Lowell, Mass.

SPINNING RING. 893,443. Fred H. Chapman, Groton, Mass.

SPINNING RING. 893,444. Fred H. Chapman, Groton, Mass.

SPINNING, TWISTING and Like Apparatus. 891,917. Henri Doll, Paris, France, assignor to Society Peignages & Felatures De Bourrse De Soie, Paris, France.

STOCKING, FINISHING and Stripping Machine. 892,100. Paul F. Vogel, St. Louis, Mo., assignor by mesne assignments to the Burson Knitting Co., Rockford, Ill.

TWINE. Grass. 891,935. Thomas W. Jerrems, St. Paul, Minn.

Textile Trade Marks Registered.

"Dependon." Cotton thread and worsted and woolen yarn. John V. Farwell, Chicago, Ill.

"Colonial Ribbon Lace." Shoe lacings. Forde & Notte, Boston, Mass.

"Dorothy Dainty." Sash and hair bow sets. Smith & Kaufmann, New York.

"Columbia Mills Blankets." Woolen bed and wrapper blankets. Thomas Kelly & Co., Boston, Mass.

"Pride of Manchuria." Silk pongee. L. Erstein & Bro., New York.

"Keiser." Men's mufflers. James R. Keiser, Inc., New York.

"Golden Starbrand." Hosiery and knitted underwear. Chas. Simons Sons, New York.

"Dorothy." Hosiery. Dorothy Dodd Show Co., Boston, Mass.

"Queen." Hosiery. Thomas G. Plant Co., Boston, Mass.

"Highland." Men's dress and negligee shirts. Carson Pirie Scott & Co., Chicago, Ill.

"Inland." Men's work shirts. Carson Pirie Scott & Co., Chicago, Ill.

"Notahol." Hosiery. Hygienic Fleeced Underwear Co., Philadelphia, Pa.

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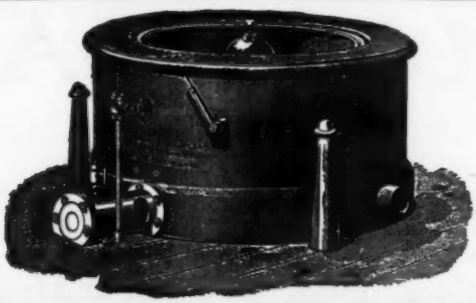

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You know the friction load of a mill, the power to turn belts and shafting alone, is high, from 20-50 per cent. of your total load.

Half of this is from tight belts.

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In some textile mills size is made in the old time way and much of it gets sour and is wasted. In other textile mills they make up their size with

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which keeps perfectly sweet and can be used when wanted. Which way do *you* think pays best?

D-X PRODUCTS

eliminate bleaching, tinting, softening and finishing troubles.

Danker & Marston, Boston

Buyers' Index

The addresses of builders of mill machinery and dealers in mill supplies, whose names appear in the following classified index, may be found upon referring to their advertisements. The Alphabetical Index to advertisers follows this classified list. Buyers who are unable to find in the classification here given such machinery or supplies as they desire, are invited to communicate with the publishers, who can, in all probability, refer them to proper sources. Advertisers whose names do not appear under desired headings will please notify the publishers. Such omissions are accidental, not intentional.

Air Moistening System.
American Moistening Co.
Buffalo Forge Co.

Architects and Mill Engineers.
Ferguson, John W.

Asphalt Floors.
Simpson Bros. Corporation.

Asphalt Tanks.
Scaife, W. B., & Sons.

Automatic Feeds for Cotton and Wool.
American Drying Machinery Co.
Kitson Machine Co.
Leigh, Evan A.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Schofield, Wm., Co.
Woonsocket Machine & Press Co.

Bale Ties.
Acme Steel Goods Co.
DeHaven Manufacturing Co.

Baling Presses.
Philadelphia Drying Mchy. Co.
Minnich Machine Works.
Sullivan Machinery Co.

Bandings.
——See under Yarns.

Baskets.
Crane Brothers.
Lane, W. T., & Bro.

Bearing Metals.
Dodge Mfg. Co.

Belting.
Burnham, E. E., Co.
Candy Belting Co.
Rhoads, J. E., & Sons.
Shultz Belting Co.
——See also Mill Supplies.

Belt Dressing.
Cling Surface Mfg. Co.
Dixon, Jas., Crucible Co.
Shultz Belting Co.
Stephenson Mfg. Co.

Belt Lacing Machines.
Birdsboro Steel Foundry & Machine Co.

Bias Machines.
Adams, A. L.

Bindings.
——See Tapes and Braids.

Bleaching Kiers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Philadelphia Drying Machinery Co.
Textile Finishing Machinery Co.

Bleaching Materials.
Bosson & Lane.
Danker & Marston.
Roessler & Hasslacher Chemical Co.

Blowers and Blower Systems.
American Blower Co.
Buffalo Forge Co.
Dean Bros. Steam Pump Works.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.
Schnitzler, Chas. H.

Bobbins, Spools, Shuttles, Etc.
American Supply Co.
American Textile Specialty Mchy. Co.
Leigh, Evan A.
Lestershire Spool & Bobbin Co.
Tebbets, E. L., & Co.
Wilson & Co.

Bobbin Winders.
Universal Winding Co.

Boiler Inspection and Insurance.
——See Steam Boiler Insurance.

Boilers.
——See Steam Boilers.

Boxes, Cloth Boards, Etc.
Pearson, J. T.

Box Strapping.
Acme Steel Goods Co.
De Haven Mfg. Co.

Braiding Machinery.
New England Butt Co.
Textile Machine Works.

Braids.
——See Tapes, Braids and Edgings.

Brass Hinges.
Root, C. J., Co.

Bridges.
Scaife, W. B., & Sons.

Brushers.
——See Napping Machines.

Brushes.
Felton, S. A., & Son Co.
Mason Brush Works.

Burr Pickers.
Curtis & Marble Machine Co.
Sargent's, C. G., Sons.
Smith & Furbush Machine Co.

Calico Printers' Machinery and Supplies.
Arlington Mch. Wks. (Arthur Birch, prop.)
Birch Bros., Somerville Machine Wks.
Butterworth, H. W., & Sons Co.
Taunton-New Bedford Copper Co.
Textile Finishing Mchy. Co.
——See also Dyeing, Bleaching, Machinery, etc.

Canvas Baskets.
Lane, W. T., & Bro.

Caps.
Calder Machine Works.

Carbonizing Machinery.
Birch Bros., Somerville Machine Wks.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Sargent's, C. G., Sons.
Tolhurst Machine Works.

Card Clothing.
Ashworth Bros.
Leigh, Evan A.
Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.

Card Cutting.
Vial, Pierre.

Carded Cotton.
Blaisdell, S., Jr., Company.

Card Feeds.
——See Automatic Feeds.

Card Grinding Machinery.
Entwistle, T. C., Co.
Leigh, Evan A.
Riley, C. E., Company.
Smith & Furbush Machine Co.
Stoddard, Haserick, Richards & Co.

Carders' Tools.
Brown, Wm. H., Co.

Carpet Machinery.
Altemus, Jacob K.
Curtis & Marble Machine Co.
Philadelphia Textile Machinery Co.
Smith & Furbush Machine Co.

Castings.
Farrel Foundry and Machine Co.
Schofield, Wm., Co.

Cell Driers.
Cell Drier Machine Co.

Cement Pans.
Scaife, W. B., & Sons.

Chemicals.
Harding & Fancourt.
Roessler & Hasslacher Chemical Co.
Vera Chemical Co.

Chemists.
Little, Arthur D.

Cling Surface.
Cling Surface Mfg. Co.

Clocks.
Pettes & Randall Co.

Cloth Boards.
Chaffee Bros.
Pearson, J. T.
Richardson Brothers.

Cloth Cutting Machinery.
Cameron Machine Co.

Cloth Stretchers.
Arlington Mch. Wks. (Arthur Birch, prop.)
Leyland, Thomas, & Co.
Textile Finishing Machinery Co.

Clutches.
American Tool & Machine Co.
Dodge Mfg. Co.
Hunter, James, Machine Co.

Combs (Wool and Cotton).
Hood, R. H., Company.
Jefferson, Edward & Brother.
Leigh, Evan A.
Philadelphia Textile Machinery Co.
Riley, C. E., Company.
Stewart & Sons.
Stoddard, Haserick, Richards & Co.

Concrete Work and Construction.
Gilbreth, Frank B.

Condensers.
Dean Bros. Steam Pump Works.

Conditioning of Textile Fabrics.
New York Silk Conditioning Works.

Consulting Electrical Engineer.
Puffer, William L.

Conveying Systems.
Buffalo Forge Co.
Dodge Mfg. Co.
Sturtevant, B. F., Co.

Cop Spindles.
American Textile Specialty Mchy. Co.

Cop Tubes.
American Textile Specialty Mchy. Co.
——See Paper Tubes.

Copper Print Rollers.
Taunton-New Bedford Copper Co.

Coppersmiths.
Badger, E. B., & Sons Co.

Copper Work for Dyers.
Butterworth, H. W., & Sons Co.
Textile Finishing Machinery Co.

Cork Inserts.
National Brake & Clutch Co.

Corrugated Iron and Steel.
Scaife, W. B., & Sons.

Cost and Accounting Systems.
Wright, R. A.

Cotton.
Blaisdell, S., Jr., Co.
Charles, W. B.
Riley, C. E., Company.

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Stoddard, Haserick, Richards Co.
Tolar & Hart.

Cotton Machinery.
Altemus, Jacob K.
American Textile Appliances Co.
American Textile Specialty Mchy. Co.
Ashworth Bros.
Brockway & Meckenstrum.
Butterworth, H. W., & Sons Co.
Cramer, Stuart W.
Crompton & Knowles Loom Works.
Curtis & Marble Machine Co.
Draper Company.
Easton-Burnham Co.
Elliott & Hall.
Entwistle, T. C., Co.
Firth, William, Co.
Howard & Bullough American Mach. Co.
Kilburn, Lincoln & Co.
Kitson Machine Co.
Leigh, Evan A.
Lowell Machine Shop.
Mason Machine Works.
McKerrow, H. G., Co., Ltd.
Metallic Drawing Roll Co., The.
Philadelphia Drying Machinery Co.
Philadelphia Textile Machinery Co.
Providence Machine Co.
Riley, C. E., Company.
Saco & Pettee Machine Shops.
Schofield, Geo. L.
Schwartz, L. H. A., & Co.
Smith & Furbush Machine Co.
Stafford Co., The.
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Textile Finishing Machinery Co.
Textile Machinery Co.
Whitin Machine Works.
Woonsocket Machine & Press Co.

Cotton Openers and Lappers.
Howard & Bullough American Mach. Co.
Kitson Machine Co.
Leigh, Evan A.
Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.

Cotton Picking Machines.
Vacuum Cotton Picking Machine Co.

Cotton Softeners.
Bosson & Lane.
Burckhardt & Co.
Danker & Marston.
Harding & Fancourt.
Nicetown Mfg. Co.

Cotton Waste.
Blaisdell, S., Jr., Co.
Charles, W. R.
Schofield, Edwin F.

Counting Machines.
Root, C. J., & Co.

Crayons.
Dixon, Jos., Crucible Co.
Howe Mill Crayon Co.
Lowell Crayon Co.

Cutting Machines.
Cameron Machine Co.

Cylinder Oil (Superheated Steam).
Power Specialty Co.

Dextrine.
Stein, Hirsh & Co.

Dobbies.
Crompton & Knowles Loom Works.
Kilburn, Lincoln & Co.
Stafford Co., The.

Dobby Chain.
Nuttall, George.

Draughtsmen.
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Drawing Rolls.
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Metallic Drawing Roll Co., The.

Drying Machinery.
American Blower Co.
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Birch Bros., Somerville Machine Wks.
Buffalo Forge Co.
Butterworth, H. W., & Sons Co.
Cell Drier Machine Co.
Hunter, Jas., Machine Co.
Jefferson, Edward & Brother.
Kenyon, D. R., & Son.
Mass. Fan Co.
Philadelphia Drying Machinery Co.
Sargent's, C. G., Sons.
Schwartz, L. H. A., & Co.
Sturtevant, B. F., Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Drying Boards.
Bull, William C.
Pearson, J. T.
Philadelphia Drying Mchy. Co.

Dusters.
——See Wool and Waste Dusters.

Dust Collectors.
Philadelphia Drying Machinery Co.
Sturtevant, B. F., Co.

Dyers, Bleachers and Finishers.
Brophy's, T., Sons.
Davidson, J. F.
Davis & Quick.
Firth & Foster Co.
Globe Dye Works Co.
Home Bleach & Dye Works.
Lorimer's, The Wm. H., & Sons Co.
Pawtucket Dyeing & Bleaching Co.
Peerless Co.
Rowland, Samuel.
Solway Dyeing & Textile Co.
Utica Willowvale Bleaching Co.
Western Thread & Dye Works.

Dyeing, Drying, Bleaching and Finishing Machinery.
Allen, William, Sons Co.
American Blower Co.
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Birch Bros., Somerville Machine Wks.
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Curtis & Marble Machine Co.
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Gessner, David.
Heathcote, John, & Son.
Hopkins Machine Works.
Hunter, James, Machine Co.
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Textile Finishing Machinery Co.
Tolhurst Machine Works.
Vacuum Dyeing Machine Co.

Dye House Cans.
Hill, James, Mfg. Co.

Dye House Floors.
Simpson Bros. Corporation.

Dye House Trucks.
Bailey, Frank.

Dye Sticks.
Bailey, Frank.
Haedrich, E. M.

Dye Tubs.
——See Tanks, Tubs and Vats.

Dyestuffs and Chemicals.
American Dyewood Co.
Atteaux, F. E., & Co.
Badische Co.
Berlin Aniline Works.
Bischoff & Co.
Bosson & Lane.
Cassella Color Co.
Chemische Aniline Works.
Danker & Marston.
Kalle & Co.
Ford, J. B., Co.
Geisenheimer & Co.
Johnson, Chas. A., & Co.
Klipstein, A., & Co.
Leyland, Thos., & Co.
Metz, H. A., & Co.
Roessler & Hasslacher Chemical Co.
Sykes, Walter F., & Co.
Thayer, Ed. M., & Co.

Dynamos.
——See Electric Lighting.

Edgings.
——See Tapes, Braids and Edgings.

Electrical Construction.
Crocker-Wheeler Co.
General Electric Co.
Sturtevant, B. F., Company.
Westinghouse Electric & Mfg. Co.

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Puffer, William L.

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Electrical Supplies.
Pettingell-Andrews Co.

Electric Driven Pumps.
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Electric Fans.
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Elevators.
Salem Elevator Works.

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Cameron Machine Co.

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Fishkill Landing Machine Co.

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Buffalo Forge Co.
Sturtevant, B. F., Co.

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Power Specialty Co.

Fans—Exhaust and Ventilating.
——See Ventilating Apparatus.

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Scaife, W. B., & Sons.

Feed Water Pumps.
Dean Bros. Steam Pump Works.
Goulds Mfg. Co.

Feed Water Purifiers.
Dodge Mfg. Co.
Scaife, W. B., & Sons.

Feeds.
——See Automatic Feeds.

Feed Water Regulators.
Berry Engineering Co.

Felt Hardeners.
Farrel Foundry and Machine Co.

Felting Machinery.
Farrel Foundry and Machine Co.

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Filters.
Hungerford & Terry.
Norwood Engineering Co.
Scaife, W. B., & Sons.

Finishing Machinery.
—See Dyeing, Drying, Bleaching and Finishing.

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Borgner, Cyrus, Co.

Fire Extinguishers.
Badger, E. B., & Sons Co.

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Fairbairn-Lawson-Combes-Barbour, Ltd.

Fluted Rolls.
Hood, R. H., Company.
Leigh, Evan A.
Jefferson, Edward & Brother.
Riley, C. E., Company.
Thurston, A. G., & Son.

Flyers.
Bodden, Wm., & Son, Ltd.
Calder Machine Works.
Hopkins Machine Works.
Jefferson, Edward & Brother.
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Fly Wheels.
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Friction Cones.
Evans, G. Frank.

Friction Rings (Cork Insert).
National Brake & Clutch Co.

Fuel Economizers.
Buffalo Forge Co.
Sturtevant, B. F., Co.

Fulling Mills for Woolen Goods.
Hopkins Machine Works.
Hunter, Jas., Machine Co.
Kenyon, D. R., & Son.

Furnaces (Automatic Smokeless).
Murphy Iron Works.

Garnetts.
Leigh, Evan A.
Smith & Furbush Machine Co.

Gas Blowers and Exhausters.
Sturtevant, B. F., Co.

Gas Engines.
Jones, Lewis.
Olney & Warrin.

Gaskets (Superheated Steam).
Power Specialty Co.

Gassing Machines.
Stubbs, Joseph.

Gauges.
Crosby Steam Gage & Valve Co.
Walworth Manufacturing Co.

Gears.
Dodge Mfg. Co.
Farrel Foundry and Machine Co.
New Process Raw Hide Co.

Gear Cutting.
Farrel Foundry and Machine Co.

Gear Cutting Machine.
Whiton, The D. E., Co.

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Crocker-Wheeler Co.
Sturtevant, B. F., Co.

Geyser Water Heater.
Sargent's Sons, C. G., Corp.

Greases.
N. Y. & N. J. Lubricant Co.

Heating.
—See Ventilating Apparatus.

Heddles.
Stoddard, Haserick, Richards & Co.

Hoisting Apparatus.
Economy Engineering Co.

Hosiery Boards.
Pearson, J. T.
Philadelphia Drying Machinery Co.

Hosiery Labels.
Kaumagraph Company.

Humidifying Apparatus.
American Moistening Co.
Buffalo Forge Co.
Cramer, Stuart W.
Parks, G. M., Co.

Hydraulic Rams.
Power Specialty Co.
Walworth Mfg. Co.

Hydro Extractors.
American Tool & Machine Co.
Broadbent, Thomas, & Sons.
Dienelt & Eisenhardt, Inc.
Riley, C. E., Company.
Stoddard, Haserick, Richards & Co.
Textile Finishing Machinery Co.
Tolhurst Machine Works.

Illuminating Engineer.
Puffer, William L.

Insulating and Braiding Silks.
Sauquoit Silk Mfg. Co.

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Home Insurance Co.

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Cross Creek Coal Co.

Ironing Machines for Knit Goods.
American Laundry Machinery Mfg. Co.
Consolidated H. S. & L. M. Company.

Jacquards.
Halton's, Thomas, Sons.

Knit Goods, Edgings, Trimmings, Etc.
Chapin, Geo. W.
Charles, W. B.
Cheney Bros.
Friedberger-Aaron Mfg. Co.
Krout & Fite Mfg. Co.
Weimar Bros.

Knit Goods, Finishing Machines Crochet, Etc.
American Laundry Machinery Mfg. Co.
Consolidated H. S. & L. M. Company.
Merrow Machine Co., The.
Nye & Tredick Co.
Robinhold Machine Co.
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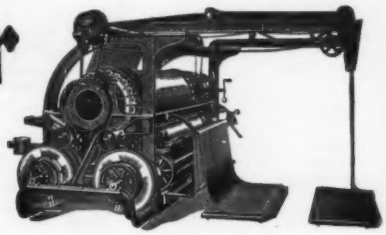

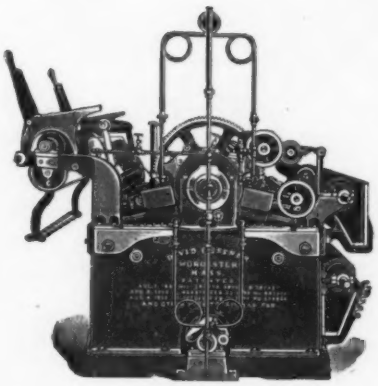

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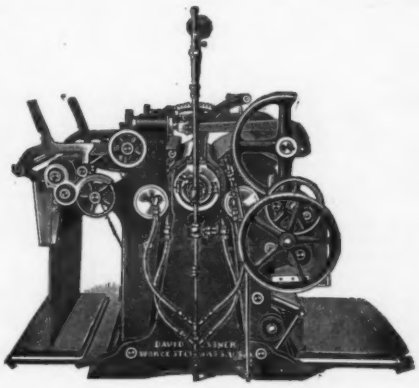

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of the Bradford-Durfee Textile School, Fall River, and formerly of the Mississippi Textile School.

This little Manual was prepared with the idea of telling briefly, but comprehensively, the things about the cotton fibre, its cultivation, and the ginning and marketing of the cotton crop, the different kinds of cotton, and other matters bearing on raw cotton, such as the average student or person connected with cotton manufacturing or the sale of cotton goods, wants to know.

There are excellent chapters on cotton baling, describing the different kinds of bales and baling processes, and on the opening and mixing of cotton in the mill, with account of different machines employed, and improved methods of mixing.

The book contains about 100 pages, with 20 illustrations, and should be in the possession of every person having to do with cotton in any state, from the seed to the retail purchaser.

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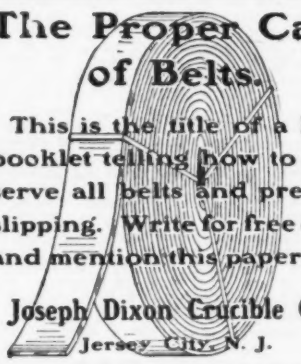

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Manager, Agent, Supt. or Supt. and Designer. Position wanted by a man 57 years of age, English, married, has worked on all classes of woolen and worsted goods, in fancy and piece dyes, from the finest to the coarsest goods. Familiar with all kinds of machinery, has exceptionally good reference, could take a position at once. 3705, Textile World Record.

Supt., Asst. Supt., or Overseer of Carding. Position wanted by a man 39 years of age, married, American. Is experienced on all kinds of cotton colored goods, long or short stock, also on bleached stock. Is familiar with Colvin, Whitin and Crompton looms, and all makes of carding and spinning machinery. Good references. 3585, Textile World Record.

Superintendent or overseer of carding in a large mill. Worked on sheetings, ginghams. Will not go West. Familiar with all kinds of cotton machinery. 41 years of age; American; first-class references. 2021, Textile World Record.

Worsted Superintendent or overseer of combing, spinning and twisting. Worked on mohair, alpaca, all foreign and domestic wools. Familiar with all kinds of machinery; first-class references. Age 45, married. 3248, Textile World Record.

SUPERINTENDENTS.

Superintendent or Assistant Superintendent, or first-class boss weaving position. Position wanted by a man 40 years of age, married. Worked on all kinds of fancy worsteds and woolens. Familiar with all up-to-date machinery. Good references. 3996 Textile World Record.

Superintendent or Assistant Superintendent, boss weaver or designer in a silk mill. Has worked on silk ties, dress goods, fancy vestings and mohair linings. Is familiar with Crompton & Knowles looms. Would prefer New York or New Jersey states, but would accept a good position anywhere. Good reference. 4518, Textile World Record, Boston, Mass.

Superintendent or Manager of Hosiery Mill. Position wanted by a man 37 years of age, married, American. Is experienced on woolen, worsted and cotton hosiery. Is familiar with all makes of knitting machinery, but prefers the Mayo, Acme or Standard. First-class references. 3650, Textile World Record, Boston, Mass.

Manager, Superintendent, Buyer or cost accountant in a cotton mill. Position wanted by a man 30 years of age. American, single. Has had a practical training in the manufacturing of cotton goods. Good reference. 3834, Textile World Record, Boston, Mass.

Assistant Superintendent in a woolen mill or an office position wanted by a man 31 years of age, single. Has had experience on low grade kerseys, cheviots, broad cloths, meltons and fancy cassimeres. Would prefer a position in New England and would work for reasonable wages if there was a chance for advancement. Good reference. 4543, Textile World Record, Boston, Mass.

Superintendent and Designer. Position by a man who has had a number of years of experience in good mills on men's wear, dress goods of all descriptions, worsteds, wool, cotton and silk. 35 years of age. American, married. 3453, Textile World Record, Boston.

Woolen Superintendent and designer. Worked on men's wear, worsteds, fancy cassimeres, smoking jackets, over-cloth, ladies' dress goods. 28 years of age; English; single. 3234 Textile World Record.

Superintendent, Assistant Superintendent or overseer of dressing, spooling and twisting. Worked on woolens, worsteds and cotton worsteds. Familiar with all makes of machinery. Good reference. 32 years of age, married. 4636, Textile World Record, Boston, Mass.

Manager or Superintendent of a woolen mill. Position wanted by a man, 50 years of age, Scotch, married. Worked on woolen and worsted goods, men's and women's wear, beavers, face finished goods. Twelve years as manager in his present position. Will be open for engagement about April 1st. 3862, Textile World Record, Boston.

Superintendent of a Worsted Yarn Mill or overseer of drawing, spinning and twisting. Position wanted by a man, 32 years of age, Scotch, married. Worked on wool from 1/4 blood up to fine domestic and Australian wools to all counts. Familiar with Prince, Smith, Lowell, Taylor, Wardsworth, Fayles & Jenks, Foster, Collins Bros.' machinery. Good references. 3847, Textile World Record, Boston.

Superintendent of woolen mill. Was in business for himself for years. He is now open for a position. Age 52, married, first-class references from commission houses. 3227, Textile World Record.

Superintendent of small woolen mill. Piece dyed goods, thibets, Venetians, meltons, etc. 3114, Textile World Record.

KNITTERS.

Overseer of Knitting. Worked on fleece lined, flat or ribbed goods on Scott & Williams, Pepper, Brinton latch needle and Tompkins Bros., Campbell & Clute and Gormley Bros. spring needle machines; good reference, 35 years of age, married. 4114 Textile World Record, Boston, Mass.

Overseer of Knitting. 38 years of age, energetic and progressive, wants position on spring needle knitting machines; 22 years' experience on stockinets, elderdowns, jerseys, astrachans, fleeces, bathing suits, athletic garments, underwear, etc., superior on these lines; good reference, married. 4087 Textile World Record, Boston, Mass.

Asst. Supt. or Overseer of Knitting on union suits, underwear, all makes of sweaters, toques, blouses, waists and fancy goods; familiar with Leighton, McMichael & Wildman, Nye & Tredick, Stafford & Holt, Tompkins Bros., Campbell & Clute, Acme, Cooper spring needle machines; also cuff and sewing machines; good reference, 42 years, married. 4110 Textile World Record, Boston, Mass.

Overseer of Knitting or second hand on latch needle machines. Worked on ladies' Swiss ribbed vests, ladies' shaped vests and men's derby ribbed underwear. Familiar with Lamb, Scott & Williams and Wildman machines. Will not go West or South. Good reference. 21 years of age, single. 4666, Textile World Record, Boston, Mass.

Overseer of Knitting or assistant superintendent in a hosiery mill. Worked on all classes of seamless hosiery from coarse wool and cotton to fine cassimeres and lisle. Familiar with Mayo, Victor, Electric, Campbell, Scott & Williams, 3/4 automatic, Brinton, 3/4 and full automatic and different makes of ribbers and loopers. Prefers a position in Massachusetts. 28 years of age, married. Good reference. 4650, Textile World Record, Boston, Mass.

Overseer of Knitting or machine fixing. Position wanted by a married man, 33 years of age, American. Worked on all kinds of up-to-date hosiery. Familiar with ribbers, Wildman, Brenton, Hepworth and Branson machines. Prefers N. E. States. Could take a position at once. 4568, Textile World Record, Boston, Mass.

Overseer of Knitting. Position wanted by a man 46 years of age. Worked on all makes of flat knitting machines, Rashel double ribbed machines and spring needle. Worked on sweaters, jackets, gloves, mittens and shawls. Good reference. 4570, Textile World Record, Boston, Mass.

Overseer of Underwear Knitting. Position wanted by a man 28 years of age, married, American. Worked on 20 to 22 gauge fleece-lined underwear and 24 gauge Balbriggan. Familiar with Tompkins Spring needle machines only. Good references. 4006 Textile World Record.

Overseer of Knitting in a small or second hand in a large knitting mill, on all makes of underwear. Familiar with the Wildman, Stafford & Holt, Campbell and more particularly Crane circular machines. 22 years of age, single. Good reference. 4619, Textile World Record, Boston, Mass.

Overseer of Knitting on spring or latch needle machines. Worked on balbriggans, all gauges, flat and plaited work and fleece lined. Familiar with the Tompkins, Campbell & Clute, Cooper spring needle, Stafford & Holt, Leighton, Scott & Williams, McMichael & Wildman, and Nye & Tredick machines. Good reference. 3050, Textile World Record, Boston, Mass.

Overseer of Knitting in a small mill or fixer on latch needle machines in a large mill. Worked on all kinds of seamless hosiery, wool and worsted. Some experience on cotton. Familiar with the Geo. D. Mayo, Excelsior, Invincible and some experience on loopers. Good reference. 4607, Textile World Record, Boston, Mass.

Superintendent of a Hosiery Mill. Position wanted by a man 49 years of age, American. Worked on all kinds of wool, worsted and cotton hosiery. Familiar with all kinds of machinery. Good references. 3075 Textile World Record.

Overseer Knitting or Fixing. Position wanted by a man 34 years of age, single; has worked on plain and ribbed goods on Cooper and Wildman machines. Good references. 4084, Textile World Record, Boston, Mass.

SPINNERS.

Overseer Worsted Spinning, twisting and reeling or carding, combing and drawing. Worked on botany crossbred wools and mixes, also fancy yarns, on Prince & Smith, Hall & Stell, Lowell, Taylor, Wordsworth & Co. machines; 35 years of age, married, good reference. 4699 Textile World Record, Boston, Mass.

Overseer of Woolen Spinning on wool, cotton and shoddy mixes, good fixer on D. & F. and J. & B. mules, 32 years of age, married, strictly temperate, good reference. 3538 Textile World Record, Boston, Mass.

Overseer of Worsted Spinning and twisting. Position wanted by a man, 32 years of age, single, English. Worked on all kinds of carpet and hosiery yarn and has been overseer in leading mills in England, Scotland and United States. Familiar with all kinds of worsted spinning machinery. Good reference. 3808, Textile World Record, Boston, Mass.

Overseer of Woolen Spinning. Position wanted by a man 46 years of age, Scotch. Has worked on all kinds of stock, also hosiery yarn. Familiar with D. & F., J. & B. and English pawl mules. Could take position at once. Good references. 3912, Textile World Record, Boston.

Overseer of Cotton Spinning. Englishman with experience on mule and frame spinning; worked on 3 1/2 to 200s filling, and on all kinds of novelty yarns, white or colored; accustomed to all machinery used in this work; wants a position in the States. 3437, Textile World Record.

Overseer of Frame or mule spinning and twisting. Position wanted by a man 46 years of age, married and American. Has worked on sateens, twills, 30 warp, 46 filling yarns from 3s to 150s. Is familiar with all makes of spinning and twisting machinery. Good references. 3582, Textile World Record, Boston, Mass.

DESIGNERS.

Designer on all Classes of Worsted Dress Goods and men's wear. Good reference, 25 years of age, single. 4117 Textile World Record, Boston, Mass.

Designer or assistant superintendent. Worked on cotton warp flannel coverts, plain and fancy cotton warp, and all wool dress goods. First-class references. 3244, Textile World Record.

Designer on any class of dress goods waistings, mantle cloths, fine shirtings, etc. 3203, Textile World Record.

Designer or Assistant Designer. Worked on fancy worsteds, mohair and alpaca linings. 31 years of age, single. Good reference. 4644, Textile World Record, Boston, Mass.

Designer or Assistant Designer. Worked on fine fancy worsted goods, all grades. 26 years of age, single. Good reference. 4634, Textile World Record, Boston, Mass.

Designer, Assistant Superintendent or superintendent in a small woolen or worsted mill. Worked on medium and high grade men's wear, woolens and worsteds; woolens as low as 60c. per yard and worsteds as high as $3.00 per yard. Understands all makes of machinery. Prefers New England. 31 years of age, married. Good reference. 4669, Textile World Record, Boston, Mass.

Designer. Worked on all kinds of woolen goods, 36 years of age, married. Good reference. 4664, Textile World Record, Boston, Mass.

Designer in Worsted or woolen mill. Worked on woolen and worsted goods of all kinds. Good reference. Will go any place for a position. 26 years of age, single, German. 4601, Textile World Record, Boston, Mass.

Designer or Superintendent. 31 years of age, English. Worked on all kinds of woolen and worsted men's and women's wear. Familiar with the English and American looms. Good reference. 4556, Textile World Record, Boston, Mass.

Designer on Jacquard Work. 36 years of age, married. Worked on brocades, fancy stripes, silk, worsted and cotton goods. Could take a position at once. Will not go West, South, or Canada. 4535, Textile World Record, Boston, Mass.

WEAVERS.

Overseer of Weaving. Worked on plain and fancy white and colored goods, checks, shirtings, sheetings, lawns, duck, silk and cotton goods; good reference, 40 years of age, married, all kinds of looms. 4108 Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Weaving. Worked on wool and worsted, also cotton worsted goods; familiar with Crompton & Knowles looms, good reference, 36 years of age, married, will not go to Canada. 4119 Textile World Record, Boston, Mass.

Overseer of Woolen, Worsted or Cotton Weaving. Worked on men's wear, ladies' dress goods, wool, silk or cotton; have been employed in one of the largest mills in N. E.; first class reference as to character and ability, 50 years of age, married. 4103 Textile World Record Boston, Mass.

Overseer of Woolen Weaving. Worked on woolen dress goods, men's wear, worsted suitings, overcoatings, on Crompton & Knowles looms; 34 years of age, married, good reference. 4100 Textile World Record, Boston, Mass.

Overseer of Cotton Weaving on plain and fancy cotton goods, all kinds of looms. Will not go West, South or Canada; good reference, 43 years of age, married. 4111 Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Weaving. Worked on worsted, cotton worsted, woolens of all kinds; Crompton & Knowles looms, understands winders and spoolers; good reference, 39 years of age, married. 4105 Textile World Record, Boston, Mass.

Overseer of Weaving Designer or Assistant. Worked on wool, worsted or cotton goods, ladies' dress goods, broadcloths, venetians, flannels, men's suitings; good reference, 44 years of age, married. 4106 Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Weaving. Worked on woolen dress goods, men's wear, cotton worsteds and fancy worsteds on Crompton & Knowles looms, good reference, 35 years of age, married. 4698 Textile World Record, Boston, Mass.

Overseer of Weaving or Cloth Room. Worked on heavy ducks, denims, suitings, checks, lenos, fancy lenos and lappets, from 2s to 200s yarn carded and combed. Familiar with Lowell, Whiting, Crompton & Knowles, Mason and Draper looms. First-class recommendations, 34 years of age, married, American. 3309, Textile World Record, Boston, Mass.

Overseer of Weaving or second hand in a woolen mill. 38 years of age, married. Worked on wool and worsteds of all kinds, high and low grade, fancy and plain. Familiar with Crompton & Knowles looms. Good reference. Will not go West, South or Canada. 4548, Textile World Record, Boston, Mass.

Overseer of Weaving in a Woolen Mill. Position wanted by a man 42 years of age, married, American. Worked on cotton, worsteds, woolens, dress goods and fancy worsteds. Familiar with Crompton & Knowles looms. Will not go west, south or Canada. Good references. 4035, Textile World Record, Boston.

Overseer of Woolen Weaving, second hand or loom fixer. Worked on worsteds, cassimeres, ladies' dress goods, blankets and cheviots. Familiar with the Crompton & Knowles looms. Has two workers in the family. Could take a position at once and will go any place. 46 years of age, married. Good reference. 4620, Textile World Record, Boston, Mass.

Overseer of Cotton Weaving, second hand, or overseer of cloth room. Worked on sateens, twills, sheetings, prints, muslins and all kinds of plain goods. Familiar with Draper, Colvin and Whitin looms. Prefers New England, but will go any place for a good position. 45 years of age, married. Good reference. 4621, Textile World Record, Boston, Mass.

Overseer of Woolen Weaving. Worked on fancy and cotton worsteds, dress goods and woolens of all kinds. Familiar with C. & K. looms. 32 years of age, married. Good reference. 4637, Textile World Record, Boston, Mass.

WEAVERS.

Overseer of Weaving in a cotton mill. Worked on all kinds of plain and colored goods, sateens, tickings, draperies, worsteds, lenos, and jacquard work. Familiar with all makes of cotton weaving machinery and jacquard head. 46 years of age, married. Will not go West. Good reference. 3120, Textile World Record, Boston, Mass.

Overseer of weaving, drawing in and twisting. Position wanted by a man 44 years of age; married; English. Has worked on plain twills, sateens, fancy lenos, Jacquard loppetts, also plush goods. Is familiar with Mason, Draper, Whitin and Crompton & Knowles looms. Good references. 3590, Textile World Record, Boston, Mass.

Assistant Superintendent or Overseer of weaving in a cotton mill. Position wanted by a man 31 years of age, married, American. Worked on plain sateens, fancy lenos, box work, as high as 100s warp, and 160s filling. Familiar with all kinds of machinery. Will not go West, South or Canada. Good references. 4019 Textile World Record.

Overseer of Weaving or designer. Lawns, sheetings, twills, sateens, quilts, bedford cords, lappets. A young man; unmarried. Good experience and first-class recommendation. 3068, Textile World Record.

Overseer of Cotton Weaving. Position wanted by a man, 27 years of age, American, married, with experience on prints, cambrics, sateens, drills, corded goods, etc. Worked on Draper, Whitin, Lowell, Mason and Colvin looms. Prefers a position in the East. 3430, Textile World Record, Boston, Mass.

Overseer of Weaving. Worked on sheetings, twills, sateens and fancies. Wants not less than $18 per week. 3157, Textile World Record.

Woolen Boss Weaver. Worked on worsteds, woolens of all kinds, also dress goods. American; 38 years of age; married. 3231, Textile World Record.

Overseer of Weaving. Position wanted by a man 28 years of age, single and Scotch. Has worked on wool and worsted, and union goods, blankets, shirtings, rugs, etc. Is familiar with Crompton & Knowles, also English looms and dobbies. Has good references. 3507, Textile World Record.

Overseer of Weaving. Position wanted by a man, American, 45 years of age and married. Has worked on dress goods, cloakings, flannels, meltons and unions. Is familiar with Crompton & Knowles and Stafford looms. Good references. 3494, Textile World Record, Boston.

Overseer of Weaving. Position wanted by a man 32 years of age and married. Has worked on woolen dress goods, suitings, cotton worsteds, worsted dress goods, kerseys, beavers and blankets. Is familiar with Crompton, Knowles, Furbush, Davis & Furber looms and dobby looms. Has first-class recommendations. 3544, Textile World Record.

Overseer of Weaving or second hand in a woolen mill. Married man, 34 years of age, American. Worked on broad cloths, sackings, covert cloths, suitings, kerseys, beavers, rain cloths and bed blankets. Familiar with Crompton & Knowles and Davis & Furber looms. Prefers a position in New England. Good reference. 4554, Textile World Record, Boston, Mass.

Overseer of Wenving or second hand in a cotton mill. 25 years of age, married. American. Worked on twills, sheetings, ducks, lenos, shirtings and motor tire fabrics. Good reference. 4545, Textile World Record, Boston, Mass.

Overseer of Woolen or worsted weaving. Worked on worsteds, cotton worsteds, woolens and dress goods. Crompton & Knowles looms. Will not go West, South or Canada. Good reference. 46 years of age, married. 4642, Textile World Record, Boston, Mass.

Overseer of Weaving. Position wanted by a man 28 years of age and married. Worked on fancy shirtings, lenos, silk dress goods, lappets and plain goods. Familiar with Jacquard machines, Mason, Crompton & Knowles and Stafford dobbies, looms. 3474, Textile World Record, Boston.

CARDERS.

Overseer of Cotton Carding or Second Hand. Worked on fine and coarse work, combed and carded, understands all American and English makes of cards, 34 years of age, married. 4116 Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Worked on goods made from wool shoddy and cotton mixes on D. & F., Lombard, Cleveland, Smith cards; prefer New England states, good reference, 50 years of age, married. 4695 Textile World Record, Boston, Mass.

Overseer of Cotton Carding, or General Second Hand in a large mill. Married man, 34 years of age. Has worked on all kinds of fine and coarse combed yarns. Understands all kinds of cards, speeders and is an expert on combers. Good reference. Will not go South, West or Pennsylvania. 4096, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Position wanted by a man 38 years of age, Scotch, married. Has worked on all kinds of woolen goods made from wool, cotton and shoddy mixes. Has worked in first class mills and has good references from same. Will not go South. 3920, Textile World Record, Boston.

Overseer of Cotton Carding. Position wanted by a man 57 years of age, married, American, has worked on all kinds of stock from 3/4 to 1 1/2 staple, all kinds of roving up to 18 hank, first class recommendations. 3713, Textile World Record.

Overseer Cotton Carding or Spinning desires position. Age 47; American; married. Is familiar with all the modern makes of English and American machinery, revolving top flat cards, single and double carding. 2073, Textile World Record.

Overseer of Carding in cotton mill. Position wanted by a man 32 years of age, married, American. Worked on waste, Upland, Bender, Peeler and Egyptian, both combed and carded, making roving for yarns from 3s to 100s. Familiar with all kinds of machines. Good references. 3969 Textile World Record.

Overseer of Wool Carding. 37 years of age, married, American. Worked on fine and coarse woolen goods, cotton, wool and silk noils and mixes. An exceptional good man on low stock. Familiar with D. & F. and Cleveland cards. Good reference. 4522, Textile World Record, Boston, Mass.

Overseer Woolen Carding. Position by a man 33 years of age; married. Worked on kerseys, meltons, cheviots, blankets, robes, underwear and hosiery, felts and sale yarns. Worked on D. & F., Lombard, Cleveland, Furbush, Platt Bros., Thornton Bros., John Haigh, Barker, D. & F. and English condensers. 3462, Textile World Record.

Overseer of Carding in cotton mill. Position wanted by a man 28 years of age, married. Familiar with white and colored numbers up to 16 H. K. Familiar with the following makes of machines: Platt, Mason, Whitin, Lowell, Providence, Kitson and Atherton. Good references. Will not go to Pa., N. J., Western or Southern States, or to Canada. 3951, Textile World Record.

Overseer of Carding or superintendent in a shoddy mill, carder and spinner in a small woolen mill. Position wanted by a man, 38 years of age, Scotch-American. Worked on all kinds of stock, cotton and wool shoddy mixes. Familiar with all kinds of carding machinery. Could take a position at once. 3738, Textile World Record, Boston, Mass.

Overseer of Woolen Carding. Position wanted by a man 47 years of age, married. Worked on woolens and knit goods, both fine and coarse, and all makes of cards. Good reference from mills where he has been employed. 3535, Textile World Record, Boston, Mass.

Overseer Woolen Carding. Position wanted by man 36 years of age, married; worked on woolen goods of most all kinds on Cleveland, Furbush, Smith, Davis & Furber, Plat, Goldie & McCulloch bark condensers; good references. 4045 Textile World Record, Boston.

Overseer of Woolen Carding or second hand in a large mill. Position wanted by a man, 38 years of age, married, and has worked on all classes of wool, cotton and shoddy mixed goods. Understands all kinds of carding machinery. Will not go West or Canada. Could be employed at short notice. Good references. Address 3868, Textile World Record, Boston.

FINISHERS

Supt., Asst. Supt. or Overseer of Finishing on cotton wool underwear and overshirts; understands the manufacturing of these goods from raw stock to finished fabric, Davis & Furber cards and jacks, Tompkins, Campbell & Clute and Cooper knitting machines, good reference, 40 years of age, married. 4109 Textile World Record, Boston, Mass.

Overseer of Finishing, cloth inspector or shipping clerk. Worked on cotton worsteds, worsted men's wear, rain cloths and cheviots; good reference, 28 years of age, married. 4693 Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Finishing. Worked on worsteds, cotton worsteds, woolen men's wear and dress goods; familiar with all makes of finishing machinery; will not go to Penn., West, South, or Canada; good reference, 48 years of age married. 4692 Textile World Record, Boston, Mass.

Overseer of Woolen or Worsted Finishing. Worked on wool and worsted goods, cotton worsteds, union cassimeres, beavers, meltons kerseys, etc.; familiar with American and English finishing machinery; will not go South, or N. J.; good reference, 40 years of age, married. 4689 Textile World Record, Boston, Mass.

Overseer of Woolen or worsted finishing. Worked or rain cloths, wool and worsted, unions and cotton worsteds. Familiar with all makes of finishing machinery. Good reference. 4595, Textile World Record, Boston, Mass.

Overseer of Woolen Finishing. Position wanted by a man 26 years of age, single. Worked on kerseys, beavers, broadcloths, meltons, cotton worsteds, men's wear and dress goods. Familiar with all kinds of finishing machinery. Good references. 3954 Textile World Record.

Overseer of Finishing, cutting or seaming department in a knitting mill, or assistant superintendent. Position wanted by a man 42 years of age, married. Worked on flat Balbriggan and fleece lined underwear. Good references. Will not go West, South or Canada. 3966 Textile World Record.

Overseer of Finishing. Position wanted by a man 46 years of age, married, American. Has worked on all kinds of woolens and worsteds, overcoatings, cloakings, dress goods, plushes, satinets and cotton warp fabrics. Is familiar with all kinds of finishing machinery. Good references. 3654, Textile World Record, Boston, Mass.

Overseer of Finishing.. Position wanted by a man 42 years of age, American and married. Has worked on all classes of fancy worsteds and is familiar with all kinds of finishing machinery. Good references. 3497, Textile World Record, Boston, Mass.

Overseer of Finishing in a woolen mill. Position wanted by a man 36 years of age, married, American. Worked on all classes of woolen and worsted goods, from highest to lowest grades. Familiar with all kinds of machines. Will not go West, South, Canada, Maine, Vermont, Pennsylvania. Good references. 4026 Textile World Record.

Overseer of Finishing in a woolen mill. Position wanted by a man 34 years of age, married, American. Familiar with cassimeres, meltons, thibets, kerseys, worsteds, cloakings, cotton worsteds and all kinds of cotton warp goods. Good references. Familiar with all kinds of finishing machinery. 3958 Textile World Record.

Overseer of Finishing. Married man, 32 years of age. Worked on all classes of woolen goods, kerseys, broad cloths, meltons, cassimeres, cheviots, thibets, etc. Familiar with the wet and dry end and all kinds of machinery. Good reference. 4533, Textile World Record, Boston, Mass.

Overseer of Finishing or second hand in a woolen mill. 29 years of age, married. English. Worked on woolen and cotton warp broad cloths and thibets. Good reference. 4544, Textile World Record, Boston, Mass.

Overseer of Finishing.. Position wanted by a man 30 years of age, married, American. Has worked on worsted serge cassimeres, flannels, overcoatings, cloakings, dress goods, meltons, kerseys, union, etc. Is familiar with all kinds of finishing machinery. Good references. 3668, Textile World Record, Boston, Mass.

DYERS.

Overseer of Dyeing. Worked on dress goods, fancy cassimeres, cross dyes, hosiery, flannel, wool, cotton and shoddy, raw stock; prefers New England, 45 years of age, married, good reference. 4691 Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on cotton piece goods, yarns, raw stock, woolen and worsted goods, slubbing and loose wool. Familiar with all kinds of cotton and woolen dyeing machinery. Will not go West or South. 25 years of age, single. A graduate of chemistry. Good reference. 3917, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on worsted yarns, fancy serges, mohair, slubbing and resist colors. All makes of machinery. Prefers New England. 28 years of age, married. Good reference. 4627, Textile World Record, Boston, Mass.

Overseer of Dyeing in a woolen mill. 28 years of age, single. Worked on piece dyes, skein yarns, slubbing, raw stock, underwear, carriage cloths and rags. Understands all kinds of machinery. Good reference. 4555, Textile World Record, Boston, Mass.

Overseer of Dyeing. Married, 29 years of age. Has worked on raw stock, piece dyes, cotton, wool, worsted yarns and understands carbonizing in the piece or rags. Good reference. Could take a position at once. 4094, Textile World Record, Boston, Mass.

Fancy Dyer. Aged 37; American; married. Cotton, wool and silk. 3158, Textile World Record.

Superintendent of a Bleachery or Dye Works or overseer of mercerizing. Worked on all kinds of goods, including bed spreads, towels, ducks, sheetings, drills, cambrics, cotton flannel, bags, shoe lining and window shades. 42 years of age; married; English. 3274, Textile World Record, Boston, Mass.

Overseer of Bleaching. Position wanted by a man 34 years of age, English, married. Has worked on cotton bed quilts, marcellus and crochet, also yarns. Familiar with the Butterworth machines. Could be employed at short notice. Will not go West or Canada. Good reference. 3836, Textile World Record, Boston, Mass.

DYERS.

Overseer of Dyeing. Worked on raw stock, wool, cotton and shoddy piece dyes, slubbing cotton and worsted yarns; also silk, jute and linen; 48 years of age, married, good reference. 4102 Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on broadcloths, carriage and casket cloths, cassimeres, raw stock, underwear and sweaters. Familiar with all makes of machinery. 27 years of age, married. Good reference. 4630, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on yarns, piece dyes, raw stock, wool, cotton and shoddy mixes, also slubbing. Familiar with different makes of dyeing machinery. Will not go West, South or Canada. 38 years of age, married. Good reference. 4629, Textile World Record, Boston, Mass.

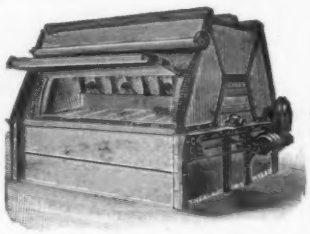
Overseer of Dyeing. Worked on worsted, wool, slubbing, piece dyes and some union stock. Good reference. 33 years of age, married. 4663, Textile World Record, Boston, Mass.

Overseer of Dyeing, mercerizing or finishing or superintendent of a bleach and dye works. Worked on cotton and wool piece dyes, skein dyeing and warps; also raw stock. Good reference. 34 years of age, married. 4647, Textile World Record, Boston, Mass.

Overseer of Dyeing. Worked on all classes of woolen goods, cassimeres and ladies' dress goods. Strong on unions. 50 years of age, married. Could take a position at once. N. E. States only. 4654, Textile World Record, Boston, Mass.

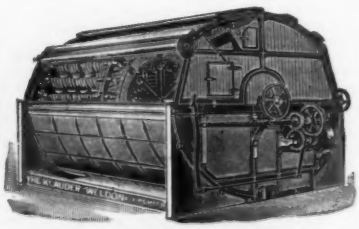
Overseer of Dyeing. Worked on wool, cotton and shoddy, mixes, raw stock, piece dyes, yarns, carbonizing and scouring. Good reference. 35 years of age, married. 4658, Textile World Record, Boston, Mass.

Boss Dyer in a Woolen Mill. Position wanted by a man 27 years of age, single, English. Worked on piece dyes, woolen and worsted, army and navy indigo blues (synthetic and natural), raw stock. Familiar with Woad vat, Hydrosulphite-Ammonia vat, Bisulphite vat. Good references. 3983 Textile World Record.



RAW WOOL AND COTTON MACHINE.

MACHINES
sold on
2 MONTHS' TRIAL
YOU
TAKE
NO
RISK

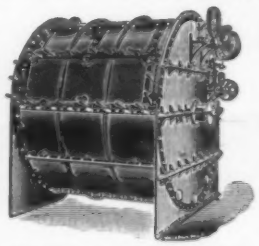


SKEIN AND SLUBBING MACHINE.

THE KLAUDER-WELDON DYEING MACHINE COMPANY

P. O. Box K, AMSTERDAM, N. Y.

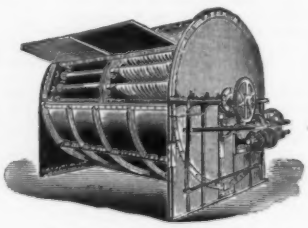
Machines for Dyeing, Bleaching and Scouring Woolen, Worsted, Cotton and Silk Skeins—Slubbing—Raw Cotton and Wool, Waste, Rags, Shoddy, Hosiery, Underwear, Hats, Caps, Knit Cloth, Tapes, etc.



SULPHUR HOSIERY MACHINE.

Special Machines for Sulphur Colors

WILL EARN THEIR COST IN
LABOR ALONE
IN FROM
6 TO 12 MONTHS
ACCORDING TO CAPACITY



SULPHUR SKEIN MACHINE.

MISCELLANEOUS.

Overseer of Tenters. Position wanted by a man 28 years of age, American, married. Worked on cotton, worsted and dress goods. Has had 12 years' experience in this class of work and is familiar with the Granger & Phenix pin and clip frames. Will not go West, South or Canada. Good references. 3885, Textile World Record.

Overseer of Dressing, Spooling, Winding, Twisting and Drawing In. Position wanted by a man 33 years of age, married, German. Has worked on fancy worsteds, fancy cassimeres, cheviots and piece dyes. Is familiar with Davis & Furber and Cleveland machinery. First-class references. 3627, Textile World Record, Boston, Mass.

Master Mechanic, assistant superintendent in a cotton mill or bleachery or mechanical engineer. 41 years of age. Has had experience on sheetings, lawns, cambrics, print cloths, ducks and filled goods. Has had experience on machinery used in the manufacture of the above goods and also machinery used in bleacheries, paper mills and box machinery. Good reference. 3153, Textile World Record, Boston, Mass.

Overseer of Burling, mending, shipping or cost clerk, cashier, designer or assistant designer in a woolen mill. Married man, 32 years of age, English. Worked on men's wear, suitings, trouserings, coatings, ladies' dress goods and cotton worsteds. Understands the English, American and jacquard looms. Good reference. 4553, Textile World Record, Boston, Mass.

Master Mechanic, chief engineer or traveling salesman. Position wanted by a man 45 years of age, married. Has worked on all classes of engines, boilers and electricity. First class draftsman. Could take a position at short notice. Good reference. 4540, Textile World Record, Boston, Mass.

Sewing Machine Fixer or machinist. Position wanted by a married man, 31 years of age. Is familiar with all makes of Union Special, National, button-hole and Singer sewing machines. Would prefer a position in New York State. Good reference. 4551, Textile World Record, Boston, Mass.

Overseer of Dressing, spooling and drawing in a woolen mill. Position wanted by a married man 27 years of age. Has worked on all classes of woolens and cotton worsteds. Familiar with Davis & Furber dressing machines and all makes af stop motion on spoolers. Will not go South. Good reference. 4550, Textile World Record, Boston, Mass.

Sewing Machine Fixer and boss finisher in a knitting mill. Position wanted by a man 31 years of age, single, American. Worked on men's, ladies' and children's knit underwear. Familiar with Union Special, Merrow, Singer, Wheeler & Wilson, Wilcox & Gibbs, Scott & Williams, Standard and Metropolitan machines. Good references. 4024 Textile World Record.

Overseer of Dressing. Position wanted by a man 36 years of age, married. Also capable of taking charge of winding, spooling and twisting. Familiar with fancy worsteds, woolens, piece dyes, rain coatings and silk mixtures. Good references. 3948, Textile World Record.

Overseer of Worsted Drawing. Position wanted by a man 30 years of age, married, and American. Is experienced on mohair, alpaca and wool. Bradford system, and is familiar with Prince, Smith and Hall & Stells, worsted machinery. Good references. 3593, Textile World Record, Boston, Mass.

Sketch Maker in Print Works. Position wanted by a man 50 years of age, married. Has worked on all kinds of goods that are printed. Twenty years' experience in large mills. Good reference. 4078, Textile World Record, Boston, Mass.

Second Hand in Cloth Room wants position as overseer or second hand; 20 years' experience on all kinds of goods; understands napping thoroughly; good references. 3048, Textile World Record.

Loom Fixer or second hand in weave room. Worked on all kinds of mixed goods, cotton and woolen dress goods, fine lenos, Jacquard and drop box looms. Age 33; French; good references. 3265, Textile World Record.

Young Man, American, wants position as boss weaver or assistant superintendent. Has worked on fancy worsteds, cassimeres and cheviots. Can also design. 1712, Textile World Record.

MISCELLANEOUS.

Master Mechanic or Assistant. Worked on all kinds of cotton mill machinery and repairs; good reference, 28 years of age, married. 4118 Textile World Record, Boston, Mass.

Overseer of Bleaching, or assistant superintendent in a bleach and dye works. Worked on all kinds of goods, cotton, wool and silk underwear, familiar with all makes of machines, 36 years of age, single. Good reference. 4690 Textile World Record, Boston, Mass.

Overseer or Superintendent of Worsted Combing. Worked on all kinds of wools, long and short, on all makes of American, English and French combs; good reference from leading firms where employed, 37 years, married. 4101 Textile World Record, Boston, Mass.

Fixer on Ribbed Hosiery. Understands Brinton, Wildman, Crane, Pepper, Acme and Mayo machines, good reference, 23 years of age. 4112 Textile World Record, Boston, Mass.

Overseer of Worsted Combing or carding and combing. Worked on 1/4, 3/8 and 1/2 blood, fine Australian, mohair, camel hair and English luster wool; Taylor & Wordsworth & Co., Hoyle & Preston, Crompton & Knowles' combs and all kinds of gill boxes; 38 years of age, married, good reference. 4115 Textile World Record, Boston, Mass.

Master Mechanic or Chief Engineer in cotton or woolen mill. Understands all kinds of machinery, has had extensive practical experience on work that comes under a master mechanic, good manager of help, good reference, married, 43 years. 4107 Textile World Record, Boston, Mass.

Cloth Examiner in Commission House. Experienced on all classes of worsted and woolen goods, first class reference, 32 years of age, strictly temperate. 4104 Textile World Record, Boston, Mass.

Foreman or Fixer in Knitting Mill. Position wanted by a man 34 years of age, married, American. Worked on all classes of cotton hosiery. Familiar with Standard, Acme, Invincible, Geo. D. Mayo loopers, Hepworth ribbers, Ruth Brinton, Wildman machines. Good references. 3999 Textile World Record.

Assistant Bookkeeper, Cashier or Paymaster in a cotton mill. Position wanted by a man 28 years of age, single, American. Has had about 16 years' experience in office work in cotton mills. Good references. 3995 Textile World Record.

Superintendent of a Print Works, bleach or dye works is open for engagement. Has worked on all kinds of cotton goods and finished, printed, bleached and dyed all classes of goods from ducks to fine lawns. Would like to communicate with manufacturers in the South in establishing a plant of this kind; good references. 4041 Textile World Record, Boston.

Overseer of Ring or Mule Spinning in a cotton mill of from 20,000 to 60,000 spindles. 45 years of age, married, American. Has worked on all kinds of goods, white and colored. Familiar with English and American carding machinery, combs, warping, spooling and winding. Can furnish the best of references as to character and ability. 3850, Textile World Record, Boston, Mass.

Master Mechanic. Position wanted by a man 44 years of age; has had experience as master mechanic in cotton and knitting and all textile mills. Will not go west, or Canada. Could take a position at short notice. 3782, Textile World Record, Boston.

Comber Man. Position wanted by a man 24 years of age; single; has worked on the Hetherington, Whitin, Nasmith, Dobson & Barlow combers. Wants a position in Massachusetts or Rhode Island only. 4085, Textile World Record, Boston, Mass.

Master Mechanic. Position wanted by a man 42 years of age married. Familiar with all kinds of machinery. Could be employed at 2 weeks' notice. First class references. 3930, Textile World Record, Boston.

Bookkeeper in a Cotton Mill. Position wanted by a man 35 years of age, married, American. Good references. Will not go to Me., N. H., Vt., Pa., N. Y., N. J., West or Canada. 4003 Textile World Record.

Alike in Appearance Only

Powdered sugar and flour look alike. One imparts sweetness, the other does not. In apearance other sodas resemble

Wyandotte Textile Soda

None Genuine except with card bearing this Trade Mark

In Every Package.

but in work, none do. If you are not using Wyandotte Textile Soda you cannot appreciate how much real economical assistance you might be getting which you are not.

Order from your supply house.

The J. B. Ford Co., Wyandotte, Mich.

Sole Manufacturers

THIS SODA HAS BEEN AWARDED THE HIGHEST PRIZE WHEREVER EXHIBITED.

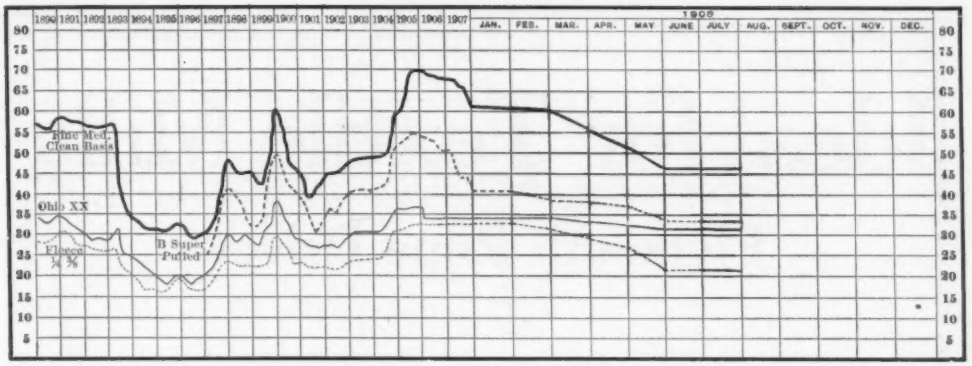


CHART SHOWING RANGES IN THE PRICE OF WOOL TO DATE.

The Wool Market.

The wool trade have apparently settled down for a long period of dullness. Manufacturers are sampling such lots as may be offered, this with a view of posting themselves as to market conditions rather than purchasing in the immediate future. The condition of the goods market forbids any stocking of the mills with raw material. Until the demand for the finished product returns or there is a good prospect of its early return the wool market will remain in its present position. An important factor in the market is the practical certainty of tinkering with the tariff after election. With both of the leading political parties pledged to tariff revision all branches of the wool trade are led by motives of ordinary business prudence to limit their purchases to actual requirements. The rule for an indefinite period will be to let the other fellow carry the load. For this reason there is slight prospect of an active wool market this year. The good prospects for the election of a president pledged to the policy of protection afford grounds for the belief that no stampede to sell wool will occur.

*Connecticut, Baltic. The addition to the Shetucket Worsted Mills, on which construction work was begun several months ago, has been completed and the building is ready for the installation of machinery.

Connecticut, Stafford Springs. A new water wheel is being installed in the plant of the Warren Woolen Co., the plant being shut down temporarily while the new wheel is being installed.

*Maine, Foxcroft. Contract has been awarded by Mayo & Son, Inc., for the construction of the proposed new woolen mill. It is expected that building operations will commence at once. The new structure will be 110 feet long, 60 feet wide, and four stories high; to be constructed entirely of reinforced concrete. Other improvements include the installation of two new water wheels to take the place of old wheels now in use. This contract has been awarded to the Holyoke Machine Co.

*Massachusetts, Clinton. Work is begun on the foundations of the new power house to be erected for the Bigelow Carpet Co.

*Massachusetts, Fitchburg. In addition to other improvements reported previously, the Sherriffs Worsted Co. will install new finishing and winding machinery.

*Massachusetts, Fitchburg. It is expected that within a month the new weave shed of the Shirreff's Worsted Co. will be ready for machinery to be set up and operated.

*Massachusetts, Middleboro. The plant of the Nemasket Worsted Mills has closed for the purpose of installing two new high pressure boilers. This concern is reported to have a large number of orders ahead with good prospects for a busy fall and winter.

*Massachusetts, Millbury. On Monday, July 20, the Nemasket Worsted Mills started up. Plant has been shut down for two weeks while two new boilers were set up and other repairs made. Fancy worsteds for men's wear are manufactured on 70 looms. The capital stock is $75,000. C. W. Barnes is pres., agent and buyer and George B. Sanford is treas. The product is sold through Stevens, Sanford, Cushman & Jordan. A dye house equipped for dyeing raw stock, yarn and cloth is operated.

Pennsylvania, Bridgeport. Repairs will be made to the power department and other parts of the mill of the I. W. Smith Woolen Co. during the next few days. To facilitate work on improvements the plant will be shut down for ten days or two weeks. Six sets and 38 looms are operated on cassimeres, fabric being dyed and finished at the plant and sold direct.

Massachusetts, Webster. The woolen department of S. Slater & Sons, Inc., closed last Saturday for two weeks at least, with no definite assurance that the mill will reopen then. For some time this department has been running on short time. The other departments of this company will not be affected by the shut down of the woolen department.

Ideal for Textile Mills

Plymouth Rope Drives

Cost less to install

Their high efficiency together with their great durability and wide adaptability make it well worth while for every textile man to look into the great merits of Plymouth Manila Rope Drives for his mill. Get full particulars.

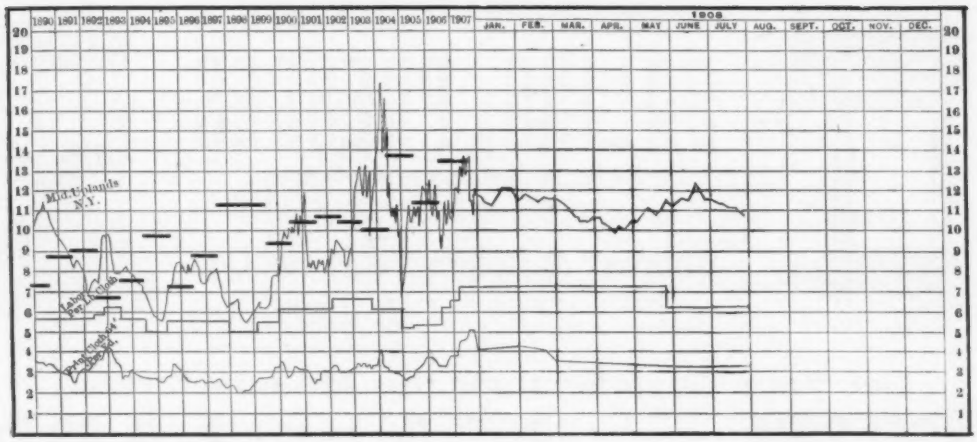
The absence of slip, great steadiness of motion, small amount of space required, freedom from electrical disturbances especially fit them for use in textile mills. They can be run in any direction and power transmitted any distance.

Cost less to maintain

Send for book on Rope Driving.

Plymouth Cordage Co.

North Plymouth,
Mass.


1890 1891 1892 1893 1894 1895 1896 1897 1898 1899 1900 1901 1902 1903 1904 1905 1906 1907
1908
JAN. FEB. MAR. APR. MAY JUNE JULY AUG. SEPT. OCT. NOV. DEC.
Mid. Uplands N.Y.
New Orleans
Galveston
Liverpool

The short, heavy, horizontal lines indicate the size of the cotton crops in millions of bales.
CHART SHOWING RANGE IN THE PRICE OF COTTON TO DATE.

The Cotton Market.

Short time in both foreign and domestic mills and the prospects of a large crop have been responsible for the decline in prices during the past month. The reduction in running time of the mills is a fact; the large crop is as yet but a fair prospect. Spinners have bought sparingly, the general belief being in still lower prices than prevail at present. The movement into sight from Sept. 1 to July 24 is reported by the Chronicle for a series of years as follows:

1907-08	July 24	11,180,077 bales
1906-07	July 26	13,219,673 bales
1905-06	July 27	10,834,325 bales
1904-05	July 28	13,148,997 bales
1903-04	July 29	10,015,460 bales
1902-03	July 31	10,621,142 bales

The world's visible supply on July 24 is estimated by the same authority at 2,133,543 bales, as compared with 2,955,546 bales on corresponding date in 1907, 2,380,631 bales in 1906, and 2,991,351 bales in 1905.

Canada, New Brunswick, Milltown. The St. Croix Cotton Mill of the Canadian Colored Cotton Mills Co., Ltd., are replacing some of the old spinning frames with new frames and adding opening machines. A rope drive is being installed also in place of the old gear and belt drive. They expect to be able to start up the mill in full on July 13.

*Florida, Jennings. No definite arrangements have been made by W. E. Privett for his proposed plant. Cotton thread and similar products will be manufactured. If the project is successful Mr. Privett has in view the development of water power and transmission of electricity for operating the plant.

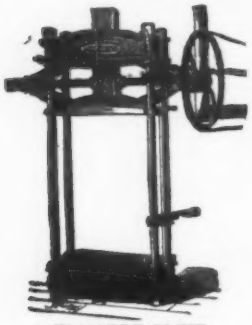
Connecticut, Norwich. On Saturday, July 11, the Falls Co. shut down for a period of two weeks during which time necessary repairs will be completed.

Connecticut, Willimantic. The plant of Max Pollack, manufacturer of thread and spool cotton, is to be equipped with a sprinkler system for fire protection.

Maine, Westbrook. The Dana Warp Mills will soon erect a large new building. During July the foundation will be laid for a new structure 93 ft. wide, 200 ft. long and 5 stories high.

Massachusetts, Adams. A large amount of new machinery will be added by W. C. Plunkett & Sons and all the old machinery is being overhauled and repaired. A new building is also being erected on the south side of the plant, the construction work being done by Waters & Fleming. It is expected that the improvements will be completed by Nov. 1 and that the company will be equipped for wet twisting, cone, tube and skein winding and to produce yarns suitable for thread manufacturers. Heretofore, cotton warps have been the sole product. While improvements are being made the output will be reduced about one-half.

WEIMAR BROS. MANUFACTURERS OF Cotton Mercerized Tapes,
SPOOL TAPES, BINDINGS AND NARROW FABRICS FOR UNDERWEAR AND OTHER TRADES.
Phone Connections. Works, 2046-48 Amber Street, PHILADELPHIA, PA.



KNUCKLE JOINT.

BOOMER & BOSCHERT

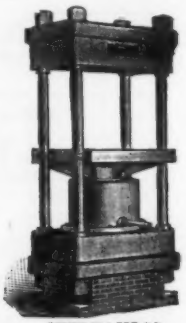
BALING PRESSES

ARE THE STANDARD

Hydraulic or Knuckle Joint
Any Size .. Any Power

Boomer & Boschert Press Co.

338 West Water S., SYRACUSE, N. Y.
Southern Agent, A. H. WASHBURN, Charlotte, N. C.



HYDRAULIC.

Get Your Supplies from the Manufacturers.

EXCELSIOR WOOL OIL COMPOUND AND COTTON SOFTENER

Established 1841

Burckhardt & Co.

Cincinnati, O.

The Excelsior Compounds are the best lubricating and softening products for wool, cotton, wool and cotton mixed. Eliminates the scouring process and effects large saving in time and soap. They will not gum in the cards.
Write for prices and particulars.

OLIVE OIL TALLOW SOAP

LARD OIL

Handles heavy cases in a Time-Saving Way—The Economy Steel Tiering Machine

Goods are put in place with ease and economy. The largest amount of stock can be stored in the smallest possible space and yet be instantly accessible. In use in representative mills. Investigate its merits and 'twill be in use in yours. Write for prices.

Economy Engineering Co. 58-64 N. Jefferson St. Chicago, Ill.

For 25 YEARS We have held OUR REPUTATION as Progressive Manufacturers. Do not forget this when ordering GAGES.

ORIGINAL SINGLE BELL CHIME WHISTLE
Harmonious
Far Reaching
Pleasing.

A Truthful Gage is the only GOOD GAGE.

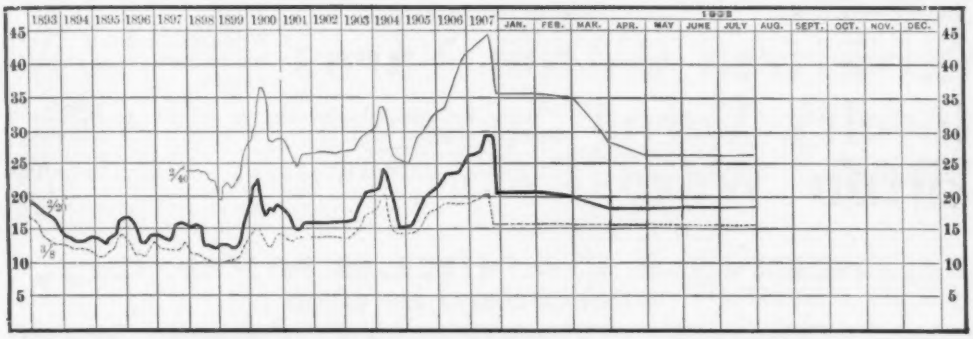
This Company manufactures, besides the above a large variety of articles used in connection with steam engines and boilers, all of which are standard quality, and may be relied upon. *Send for Catalogue.*

CROSBY STEAM GAGE & VALVE CO.

Stores: BOSTON, NEW YORK, CHICAGO, LONDON.

Office and Works: BOSTON, MASS.

Yarn Department.



GRAPHIC CHART SHOWING RANGE IN THE PRICE OF COTTON YARN TO DATE.

The Cotton Yarn Market.

The cotton yarn market has been very dull. While there was a strong effort to advance prices to a level based on the recent advanced cotton market, the effort met with very little success.

The tendency of the market is downward, although there is hardly a number on the list that can be made at a profit on prices that have been quoted recently.

It is our experience that more spinners are curtailing or shutting down at present than at any time this year. Any material improvement in the demand would place yarn on a basis of 2c. to 3c. per pound above its present price.

The belief in better business during the fall is very strong, and the outlook is considerably more hopeful. We quote as follows:

Eastern Cops.

6s	18¾
8s	19¼
10s	19¼
14s	20¼
16s	20¾
18s	21¼
20s	21¾
22s	22¼
24s	22¾
26s	23¼
30s	23¾
34s	24¼
36s	24¾
40s	25¼

On cones, ¾c. more up to 14s; 1c. more from 15s to 22s; 1 1½c. from 23s to 35s, and 2c. above that.

Eastern Two-Ply Skeins, Carded Peeler.

12s	21
14s	21½
18s	23
20s	24
24s	24½
26s	25
30s	26
36s	29
40s	30
45s	34
50s	41
55s	46
60s	50

Eastern Two-Ply Warps, Carded Peeler.

2/30s	26
2/36s	29
2/40s	30
2/45s	34
2/50s	41
2/60s	50

Egyptian Weaving Yarns.

Single Skeins Combed.

30s	36
36s	37½
40s	38½
45s	40
50s	46
55s	49
60s	53
70s	58

The Philadelphia Market.

7s and coarser	17½
8s and 9s	17½
10s	18
12s	18½
14s	19
16s	19½
18s	20
20s	20
22s	20½
24s	21

THE J. R. MONTGOMERY CO.,

Windsor Locks, Conn.

MANUFACTURERS OF

Mercerized Cotton Yarns Gives the High Silk-Like Lustre in Knit Goods and Woven Fabrics.

Novelty Yarns Boucle, Bourette and Spirals, in Cotton, Wool, Worsted, Mohair and Silk.

Cotton Warps on Beams, Jack Spools and Tubes. In Fancy, Twist, Colors and Printed.

GREENE & DANIELS MFG. CO.,

COMBED, CARDED AND GASSED

Yarns, Threads, Twines and Chain Warps.

DYE SULPHUR BLACKS DIRECT IN COPS, CONES OR TUBES.

Colored and Bleached Yarns Furnished in any manner desired by the trade.

Pawtucket, R. I.

MONUMENT MILLS,

Manufacturers of
White, Colored, Fancy
and Double Twist

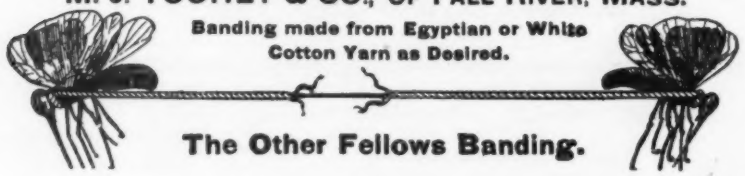
COTTON WARPS

HOUSATONIC, MASS. 4s to 60s.

THESE MULES
CANNOT BREAK
THE
BANDING
—MADE BY—

M. J. TOOHEY & CO., OF FALL RIVER, MASS.

Banding made from Egyptian or White Cotton Yarn as Desired.



The Other Fellows Banding.

The Merwin Paper Company

Hartford, Conn.

Press Papers and Fender Boards

Correspondence Solicited

Mills at Rainbow, Conn. Address Inquiries to Rainbow, Conn.

26s	21½
30s	22½
40s	27
50s	34

Southern high grade mule yarn:—

Cones.

10s	20
12s	20½
14s	21
16s	21¾
18s	22¼
20s and 22s	22¾-23¼
24s	23¾

Southern frame yarn, lower grades:—

6s and 8s	17
10s	17½

Eastern cones (high grade quality):—

10s	21½
12s	22
14s	22½
16s	23¼
18s	23¾
20s and 22s	24¼-24¾

Skein yarn (mostly Southern):—

4s and 8s soft	16
10s and 12s	17
14s to 20s	17½-18½
22s	19
24/2	17
16/2	17½
20/2	18½
30/2	22
40/2	27
16/3 slack	18
12/3 slack	17½
8/3 carpet	16
8/3 slack	16½
9/4 slack	16½

Warps (Southern):—

10s to 12s	17
14s	17½
16s	18
20s to 22s	18½-19
26s	20
14/2	18
16/2	18½
20/2	19
24/2	21
30/2	22
40/2	28

Mixed colored yarns (mock twist, half colors):—

6s to 10s	18-19
12s to 14s	19½-20
16s to 18s	20½-22

Mock Egyptian, 2c. advance over white.

Egyptian, 5 to 6c. above the best quality white.

Massachusetts, Fall River. The Troy Cotton & Woolen Mfg. Co. started July 6 with the new Harriss-Corliss engine after having been stopped four weeks while it was being installed. Other improvements made to the machinery equipment during the shut-down have been given.

JAMES E. MITCHELL CO., COMMISSION MERCHANTS.
Cotton Yarns
AND COTTON CLOTHS.
122-124 Chestnut Street, PHILADELPHIA, PA.
73 Leonard Street, NEW YORK.
Brown Building, 185 Summer Street, BOSTON, MASS.
25 South Tryon Street, CHARLOTTE, N. C.

CATLIN & CO.,
Cotton Yarns.
345 Broadway, NEW YORK.
67 Chauncy Street, BOSTON.
128-130 Chestnut Street, PHILADELPHIA.
605 Medinah Temple, CHICAGO.

Harding, Whitman & Co.,
Dry Goods Commission Merchants,
COTTON AND WORSTED YARNS.
BOSTON. NEW YORK. PHILA.
CHICAGO. BALTIMORE. ST. LOUIS.

A. D. Salkeld & Bro.
COMMISSION MERCHANTS
DEP'T. FRED'K VIETOR & ACHELIS
COTTON YARNS
66-72 LEONARD STREET - - NEW YORK

Fred Sternberg & Co.
530 Broadway, - NEW YORK.
MERCERIZED TURKEY RED GASSED } COTTON YARNS.

LUDWIG LITTAUER,
SUCCESSOR TO
MOELLER & LITTAUER, 109 Greene St., New York
SILK, WORSTED, WOOLEN YARNS COTTON AND MOHAIR
Polished Threads and Tinsel. Artificial or Wood Silk.
Mercerized, Turkey Red, Fine Gassed Yarns.
SILK MILL, BOONVILLE, N. Y.

High Grade Hosiery Yarn
White and Colors. All Numbers. Sewing Twines on Cones and Tubes
SPECIALTIES IN WEAVING YARN
Black and White. Double and Twist for Woolen Trade.
CANNON MILLS 53-5 Worth Street, New York
Philadelphia Office, 205-7 Chestnut St.

C. MOORE & CO.,
Manufacturers of
TWINES, THREADS AND YARNS
Jacquard Harness Twines of all kinds
on hand and made to order.
S. W. Cor. Fifth and Market Sts., Phila.

G. T. Crocker, Pres. W. F. Stiles, Treas.

ORSWELL MILLS

Fitchburg, Mass.

Capacity, 45,000 Spindles.

HIGH GRADE YARNS

From Egyptian and Peeler Cottons, Carded or Combed, in Chains and Skeins, on Balls, Beams, Spools, Cops, Cones, Tubes, Single or Twisted.

Cotton Yarns

Jenckes Spinning Company
Pawtucket, R. I.

Carded and Combed single and twisted Yarns and Threads from Peeler, Sea Island and Egyptian Cottons, on Cops, Cones and Tubes or in Skeins and Warps. Six Cord Thread Yarns a Specialty **Bleached or in colors**

GRANT YARN CO.,
COMBED AND CARDED COTTON.

YARNS 40's and above. AND
FITCHBURG, MASS. **WARPS**

F. W. MAURER & SONS CO.
MANUFACTURERS OF
TAPES, BINDINGS, NARROW FABRICS AND EDGINGS FOR NOVELTY CURTAINS
Office, 528 Cherry St. Factories, 529 & 531 Arch St. and 524 Cherry St., and Germantown Ave. & Bristol St.
PHILADELPHIA

Century Cotton Mills

Manufacturers of

Hosiery Yarns

Nos. 10s to 30s Sell Direct

South Boston - - - Virginia

MARYLAND WOOL AND COTTON EXCHANGE
906-908 Streeper St., Baltimore, Md.

High Grade Hosiery and Weaving Yarns all colors.

Operating Well Equipped Bleachery, Dyehouse, Spool, Cone and Twist Mill.

Simplex Yarn Tables.

Showing equivalent sizes of different systems of numbering yarn; cotton, woolen, worsted, etc., so that the sizes of different standards may be quickly compared. Also contains a number of other valuable yarn tables for designers, manufacturers and knitters. PRICE 50c. Textile World Record, Boston.

Testing of Yarns.

Count-Twist-Strength-Moisture-Chemical Test
When in doubt apply to
NEW YORK SILK CONDITIONING WORKS
138-140-142 Spring St., New York

Ballou Yarn Co.

PROVIDENCE. R. I.

Harness and Seine Twines and other Job Gassing, Winding, etc. All Numbers

GASSED YARN SPECIALTIES

C. M. BLAISDELL, Pres. and Treas. G. A. BLAISDELL, Vice-Pres. and Sec'y.
Established 1860—Incorporated 1893.

THE S. BLAISDELL, JR., CO.,

COTTON, EGYPTIAN PERUVIAN

American Long Staple a Specialty. Shipments direct to mill from Egypt, Peru and all American Southern Points.

CHICOPEE, MASS.

Cotton Waste Purchased on Yearly Contract from Mills.

Reels for Cotton WOOLEN AND WORSTED

Patented Hosiery Winders, Cop Winders and Spoolers.

LINDSAY, HYDE & CO.,
2124 to 2130 East York St., PHILADELPHIA, PA.

Lowell Crayons

Meet the requirements of any cotton, woolen or worsted mill.

May we send samples? 15 colors and white.

Lowell Crayon Co., Original Manufacturers **Lowell, Mass.**
Trade Mark on every box.

The Woolen and Worsted Yarn Market.

Spinners of worsted yarns report that there has not been any great increase in the demand for yarns. The orders are small and mostly for sample lots, the spinners reporting business as spasmodic, one week brightening up and the next with hardly any orders. In spite of the fact that the spinners of both French and English spun yarns claim that prices have increased, due in a sense to the firm condition of the wool market, they are meeting the manufacturers half way when good orders are to be placed in order that they may keep their machinery running.

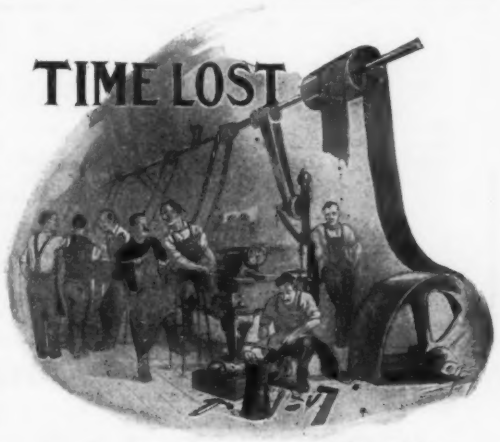
French spinners claim that they are able, in many instances, to keep their frames running nicely on what orders they have and that prices on all numbers from single 20s to 40s filling, and from 2/20s to 50s warp, will advance fully 5 per cent., and in some cases a little higher. Spinners of Bradford yarns, in 1/4 bloods and above, are of the opinion that these yarns will advance from 2 1/2 to 5 per cent., and the same may be said of 2/36s which have also gone up.

The middle West is still complaining about the slowness of the large retailers in placing their fall orders; the mills selling the jobbing trade claiming that they are doing about the same amount of business that they did last year, but that they have been compelled to get a great many more orders to keep up the same volume, as the business placed so far has been in small lots.

Eastern business is still improving and some good orders have been received from this end.

The sweater and fancy knit goods manufacturers still continue to place orders for yarns, both woolen and worsted of the higher grades, reporting that they expect a better business on these goods this year than they have had for some time. The underwear manufacturers are still quiet, but some very small orders are coming in from this trade, while the hosiery business is reported as gradually picking up.

The spring season for men's wear is now opening up and most of the mills are taking sample orders. The belief in the market is that in the near future the mills will begin to run full time and that in all probability buyers will not be able to get deliveries as quickly as they would like. The chief fabrics called for are the resists in the new mode colors. Cotton worsteds are not doing much unless the styles are exceptionally good and the fabrics cheap. Rain cloths are not selling to any great extent and there are few being called for. It is expected that it will be September or October before there is any demand for them.



Rhoads Leather Belting

saves time waste. It is built for service,—continuous service on the long run. Its strength, trueness, and the fact that it is thoroughly and permanently stretched get this result. It does the work and keeps doing it.

J. E. RHOADS & SONS

PHILADELPHIA: 12 No. Third St. BOSTON: 105-111 Summer St.
NEW YORK: 40 Fulton St. Hamblet & Hayes Co., Eastern Agts.
Factory and Tannery, Wilmington, Del.

LINEN YARN IMPORTER.

HUGHES FAWCETT, 115 Franklin Street, NEW YORK.

Flax, Hemp and Jute Line and Tow Yarns,
For Weaving Purposes.
Linen Jacquard Harness Twines,
Fine Cotton Harness and Heddle Twines,
For Cotton, Silk, Woolen and Carpet Manufacturers.
Correspondence solicited. Samples promptly furnished.

DUNCAN & YOUNGS
95 Worth Street, NEW YORK
Practical Manufacturers of
YARNS, THREADS, TWINES, CORDS, ROPE
AND MILL SUPPLIES
Anything in the line you cannot get anywhere else apply to us.

FRANK A. TIERNEY,
TOPS, NOILS, ROVINGS, YARNS.
Wool, Silk, Mohair, Camels Hair, Ramie.
Garnetted Stocks
Silk also Ramie Tops and Noils, Ramie, Silk, and Silk Noil Yarns,
Special Textile Fibres and Novelties.
Wool Exchange Bldg., 260 West Broadway, New York.

MILL CRAYONS OUR SPECIALTY
Made in 15 Colors and White 2 Grades.
Write for Quotations.
Howe Mill Crayon Co., Lowell, Mass.

Pocasset Worsted Company

WORSTED YARNS

100 Boylston Street, - Boston, Mass.

French System. **B. F. BOYER CO.,** Bradford System.

MANUFACTURERS OF

WORSTED AND WOOLEN YARNS,

Office and Mill, River Ave. and Marlton St. **CAMDEN, N. J.**

KROUT & FITE MANUFACTURING CO.,

Manufacturers of

Silk, Cotton and Mercerized Narrow Fabrics

SPOOL TAPES A SPECIALTY.

Telephone Connection. Office and Mill, Allegheny Ave. and Emerald St., PHILADELPHIA.

WORSTED YARNS

RICHARD CAMPION.

SELLING AGENT FOR

Bristol Worsted Mills,
Highland Worsted Mills.

300 Chestnut Street,
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EDDY & STREET,

Cotton, Woolen

Yarns and Braids

Worsted, Spun Silk.

PROVIDENCE, R. I.

Beacon Narrow Fabric Co.

Braids & Tapes

Notre Dame St. FALL RIVER, MASS.

Woolen and Merino YARNS

Eaton Rapids Woolen Mills,

EATON RAPIDS, MICH.

Bradford System French System

STEPHENSON & CO.

Worsted and Woolen Yarns

240 Chestnut Street
PHILADELPHIA.

Worsted AND Woolen Yarns

WALTER McCOOK

BELL TELEPHONE LOMBARD 3790 576 Bourse Philadelphia

Joseph D. Swoyer & Co.,

Manufacturers and Commission Merchants

Woolen, Worsted and Cotton Yarns

HOWARD AND BERKS STREETS,
PHILADELPHIA.

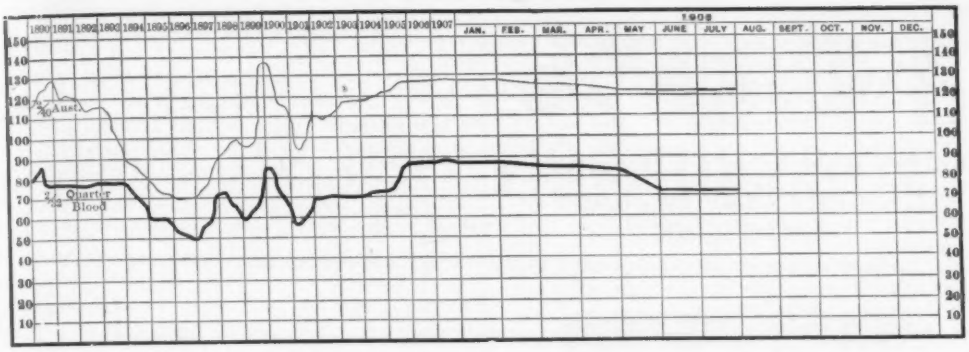

CHART SHOWING RANGES OF PRICE OF WORSTED YARNS.

Wool goods are all very slow. There is some demand for thibets and goods on this order to be made up into overcoatings. In some quarters it is anticipated that these cloths will take the place of rain cloths. The fancy woolen trade, for men's wear, taken altogether is not bright, but there are some mills that have lines out in the new mode effects that are doing very well; this is the exception rather than the rule as many of the woolen mills are hungry for business.

The dress goods trade here is very quiet. The only demand seems to be for high grade novelties in shadow and mercerized stripes. Plain serges and cheviots are going to be more in demand this season than for a number of seasons back. While the outlook at the present time is not very promising it is anticipated that August or September will see a rushing business on ladies' dress goods. There will be no material break between the fall and spring as the manufacturers, in all probability, will not make up their spring lines while busily engaged with their fall goods.

The demand for carpet yarns has been small and spinners do not feel that there will be any immediate increase from this quarter. We quote as follows:

2/12 to 2/16 low common	60-62½
2/26 to 2/28 common	67½-70
2/12 to 2/20 1/4 blood	70-72½
2/26 to 2/28 1/4 blood	72½-75
2/32 to 1/4 blood	75-77½
2/20 3/8 blood	82½
2/26 3/8 blood	82½-85
2/30 3/8 blood	85
2/36 3/8 blood	85-87½
2/40 1/2 blood	1.00-1.02½
2/40 delaine	1.10-1.12½
2/50 delaine	1.15-1.17½
2/40 Australian	1.20-1.25
2/50 Australian	1.27½-1.30
2/60 Australian	1.40-1.42½
2/24 lustre	85
2/28 lustre	87½
2/30 and 3/32 lustre	90-92½
2/36 lustre	97½-1.00
1/24 worsted and 80s single cotton for raincloths	1.00-1.05
1/24 worsted and 120 single cotton for raincloths	1.15-1.20

FRENCH SPUN YARN.

1/20 1/4 blood	75-77
1/20 high 1/4	80-82
1/20 3/8 blood	85-87
1/20 1/2 blood	93-95
1/20 high 3/8	87-90
1/30 high 1/4 blood	83-85
1/30 3/8 blood	88-90
1/30 1/2 blood	98-1.00
1/40 1/2 blood	1.00-1.05
1/50 delaine	1.20-1.22
1/40 Australian	1.25-1.30
1/50 Australian	1.30-1.35
1/60 Australian	1.40-1.45
1/70 Australian	1.45-1.50

*Connecticut, Baltic. Contract has been awarded by the Baltic Mills Co. to the Anderson Hydraulic Co., of Boston, for the erection of two dams at the reservoir which the Bristol Co. is building.

Connecticut, Danielson. The Quinebaug Company has added 16 new Whitin spinning frames, setting them up in the old picker house which will in future be utilized as a spinning room. The plant is running full time.

*Massachusetts, Southbridge. New machinery is being set up in the mill completed some time ago for the Central Mills Co. It is understood that the new equipment consists of 2,000 spindles and 50 looms.

New Jersey, Passaic. The Brighton Mills are installing new spinning machinery supplied by the Howard & Bullough American Machine Co.

*North Carolina, Cumberland. A large part of the machinery has been removed from the old wooden mill of J. Frederick Houston & Co. to the new brick and concrete mill recently completed. The old building will now be torn down. The dimensions of the new structure are 341 by 76 ft. Electric power will be generated by a Smith-Morgan turbine wheel of 225 horse-power distributed by 35 motors, while the plant will also have capacity of 125 steam horse-power.

Dollars and Cents Efficiency is the Only Way to Judge Lubricants

You can pay more per pound or per gallon, and you can get oils and greases that cost less than the genuine

but you CAN'T get any other lubricant which combines the full lubricating value of oil, the cleanliness and lasting properties of grease. You CAN'T get another lubricant that will keep bearings at lower temperature, that will last so long, or will save as much power.

Tell us the speed and type of your bearings and we will send sample of NON-FLUID OIL specially adapted to your work.

ORIGINATORS AND SOLE MANUFACTURERS

New York & New Jersey Lubricant Co.
Dept. H
14-16 Church Street, New York City

William B. Charles,
Amsterdam, N. Y.
Cotton Yarns, Cotton Cloth, Silesia, Sateens,
For the Underwear Trade.

Knitting and Weaving YARNS.

Cones, Cops, Warps, Skeins,
Single, Double, Three-Ply, etc.
Peeler, Egyptian, Mixed Colors.
Large Assortment.

EDWARD S. HYDE,
226 CHESTNUT STREET,
Philadelphia, Pa.

The Rag and Shoddy Market.

All existing conditions contribute to dullness in the rag and shoddy market. It is the season of light weights, in which only a small amount of shoddy can be used; what little demand there is for goods is for the smooth finish, for which wool substitutes are not adapted; added to these factors is the political situation with its promise of revision of tariff rates. One dealer in waste and wool substitutes, unable to sit with folded arms for the return of good business, has adopted the drastic remedy of purchasing a mill in which to use his stock in the manufacture of a standard grade of wool goods. This is an exceptional case, but illustrates the trade situation which has brought it about. We quote as follows:

SHODDIES AND EXTRACTS.

White yarn, best all wool	42-48
White knit, all wool, best fine	30-41
White knit, No. 2	30½-39
Light yarn, extra fine	30-32½
New pure indigo blue	30-33½

Merino.

Fine light, all wool	25-27
Medium light, all wool	17-18
Fine black, all wool	26-30½
Fine dark, all wool, best grade	20-22½
Medium dark, all wool, No. 2	15-18
Red knit stock, strictly all wool	20-22
Red flannel, all wool	
Dark blue for hosiery, strictly all wool, No. 1	20½-23
Dark blue for hosiery, not all wool, No. 2	15½-18

WOOLEN RAGS.

Fine merchant tailors	10-13½
Choice light colors	16-17
Browns	12-15
Blacks	10-13½
Fine blues, plain	9½-12
Fine dark	10½-13
Medium dark	6-10

Worsteds.

Blue	14-19
Black	20-22½

Serges.

New black	15-17½
New blue	

Flannels.

New scarlet	19-20½
New blue	16-18½
Cloakings	3-7½

SOFTS AND KNIT STOCK.

Soft woolens, best	6-8
Old white flannels	20-23½
Old red flannels	12-17

CHENEY BROTHERS

Silk Manufacturers. So. Manchester, Conn.

Trams, Organzine and Spun Silks in the hank, or on spools and cones for woolen manufacturers.

Silks for electrical uses, insulation and special purposes made to order.

Knitting Silks, Ribbons and Piece Goods for Trimming Knit Goods.

Dress Silks, Satins, Linings, Printed Pongees, Foulards and Decorative Silks; Upholstery Goods, Ribbons, Sashes, Plushes and Velvets.

WILLIAM RYLE & CO.,

Foreign and Domestic

Spun Silk Yarns and Noils.

Domestic Thrown Silk of every description. Fine Pure Dye Silks for the woolen trade a specialty. Importers of European and Asiatic Raw Silk.

54 Howard St., cor. Mercer St., NEW YORK.

SAUQUOIT SILK MFG. CO.,

INSULATING AND BRAIDING SILKS.

ORGANZINE, TRAM & HOSIERY SILKS.

Fast Dye Organzines for Woolen Manufacturers a Specialty.

Mills: Bethlehem, Pa., Phila., Pa., Scranton, Pa. New York Representatives, Wm. Ryle & Co., 54 Howard St.—Phila. Office, 4015 Clarissa St., Nicetown.—Chicago Office, 188-190 Market St.—Boston Office, 78 Chauncy St.

Crochet Lace Edgings

Spun Silk, Splicing Yarn, Mercerized Yarns, Cotton Warps, Sewing Threads, Tapes, Braids, Domets, Cambrics, Silesias.

Write for Prices and Samples.

George W. Chapin, 229-231 Church St., Philadelphia.

Old blue flannels	8½-10
Old plaids	8-9½
White stockings	20-22½
White hood stock	21-23
Clear hoods	9-12½

Dyestuffs and Chemicals.

Acids.

Acetic, 100 lbs.	2.60-3.25
Citric, domestic	50-50½
Oxalic	8-9
Sulphuric, 66°, 100 lbs.	1.30-1.85
Muriatic, 18°	1.12-1.80
Tartaric crystals	26-30½

Miscellaneous Chemicals and Dyestuffs.

Acetate of lime, gray, 100 lbs.	2.55-2.90
Alum, lump	1.72-2.50
ground	1.82-2.26
powdered	2.80-3.32
Aqua ammonia, 26°	4-6½
Ammoniac, sal., gray	69
Borax, bbls.	4-7½
Brimstone, crude, ton	24-50
Copperas	65-82
Cream tartar, crystals	20-24
Fuller's earth, powdered, ton	18-20½
Glauber's Salt	50-65
Potash, chlorate, crystals	11-12
powdered	11½-12½
carbonate	5-6½
Soda, bicarbonate	1.62-1.76
Soda, caustic, domestic, 60 per cent.	1.73-1.90
Sal., American	70-83
Vitriol, blue	5-6
Acetate of soda	4-6½
Acid, picric, best crystals	27-29
tannic, commercial	30-41
Albumen, egg	60-70
blood	24-32
Alizarine, red	17
Aniline, oil	11-14
salt crystals	13
Bichromate of potash, American	10-10½
Bichromate of soda	8-8½
Bisulphite of soda	3-4½
Cutch, mat	5-6
Dextrine, imported potato	6-10
Divi-divi, ton	46.00-68.00

North Carolina, East Durham. About $50,000 is being expended by the Durham Cotton Mfg. Co. for improvements and installation of new machinery. Finishing machinery has been added and generators and motors will be installed in place of the present power equipment.

North Carolina, Rockingham. The capital stock of the Roberdel Manufacturing Co. will be increased from $200,000 to $500,000 for the purpose of enlarging the business. Heavy plaids and ginghams are manufactured on an equipment of 14,000 ring spindles and 604 looms.

EDWIN F. SCHOFIELD
ALL GRADES
PULLED AND FLEECE WOOLS
FOREIGN NOILS, CARPET WOOLS.
COTTON WASTE.
45 SOUTH 3RD STREET,
Philadelphia, Pa.

William B. Charles,
Amsterdam, N. Y., U. S. A.
Cotton and Wool Wastes
COTTON YARNS
Contracts made with Cotton and Woolen Mills for Yearly Waste Production. Correspondence solicited. Shepperson's Code, 1878. Cable Address "Charles."

SHODDY W. H. H. SLACK & BRO. SPRINGFIELD, VT.
Established 1871 **FLOCKS**

Carpet Manufacture
BY FRED BRADBURY
The only complete work on the subject.
A handsome volume, bound in dark green cloth, gold lettering; over 300 pages; 250 illustrations and 3 colored plates.
Price $3.00—Carriage Prepaid.
A reliable book on carpet and rug manufacture that will strongly appeal to the manufacturer and designer. It is written in an easy style, combining text and illustrations in a manner that gives the perfect technical book.
The chapters are: Designing, Color, Brussels Carpets, Wilton Carpets, Tapestry Carpets, Axminster Carpets, Chenille Axminster Carpets, Kidderminster and Scotch or Ingrain Carpets.
LORD & NAGLE CO. Publishers, Boston, Mass.

Chemische Aniline Works
Manufacturers of
Anthracin & Coal Tar Products
24-26 Stone Street
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FIRE, LIGHTNING, WINDSTORM.

The HOME INSURANCE COMPANY NEW YORK

Organized 1853. MAIN OFFICES, 56 CEDAR ST.

Cash Capital, $3,000,000.

ASSETS January 1st, 1908	$20,862,698
LIABILITIES (Including Capital)	13,659,487
RESERVE AS A CONFLAGRATION SURPLUS	500,000
NET SURPLUS OVER ALL LIABILITIES AND RESERVES	6,703,211
Surplus as Regards Policy-holders	10,203,211
Losses Paid Since Organization Over	110,000,000

Note amount of surplus after providing for San Francisco and other conflagrations.

HOME Policyholders everywhere have protection, which is sure, notwithstanding conflagrations anywhere.

IS prepared to entertain liberal lines on Sprinkler-Equipped and Modern Improved risks generally, having a special department for the consideration of such business.

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CLARENCE A. LUDLUM, Asst. Sec'y.
AREUNAH M. BURTIS, Secretary.
CHARLES L. TYNER, Secretary.
HENRY J. FERRIS, Asst. Secretary.

*Arkansas, Nashville. James McMahon advises that he and his father, Martin McMahon, of Knoxville, Tenn., have contracted to buy the property of the Arkansas Woolen Mill, Inc., from the receiver, but the purchase has not yet gone through. Mr. McMahon states that provided the citizens of Nashville will give a bonus of $500 he will start the plant on flannels, blankets, jeans and yarns, after making necessary repairs. The bonus is being raised and probably the industry will be started. Mr. McMahon was until recently employed in Philadelphia. The machinery of the Arkansas Woolen Mills consists at present of one set of cards, 240 spindles and 11 looms with steam power and a dyeing and finishing department. If the plant is started they will add 4 broad looms, 91 in. reed space, a small twister suitable for stocking yarn, and a number of narrow reeds.

Connecticut, Baltic. The Reliance Worsted Co. of Norwich is operating 25 looms in the Donahue Mill. The plant of this company in Norwich is unable to fill orders on time.

Connecticut, Norwich. The Clinton Mills Co. started on Monday on full time with a force of hands but little below normal. For some weeks past this company has followed the plan of curtailment suggested by the cotton mill treasurers.

*Connecticut, Norwich. Another proposition has been made to the Board of Trade by W. P. McClure and associates of the National Automatic Knitter Co. of Philadelphia. It is proposed to organize a company with capital stock of $100,000, all of which will be common. $50,000 is to be paid in cash, and to be used for the purchase of machinery equipment and for operating the plant. The Philadelphia parties will subscribe $2,500 and manage the manufacturing and selling ends. This plan eliminates all the objectionable features contained in the one submitted a few weeks ago, where it was proposed to have an excessive stock issue. There is a possibility that this proposition will be accepted.

Connecticut, Thompsonville. The Hartford Carpet Co. has shut down its plant and will not reopen until July 13. On the other hand, the Upson & Martin Carpet Co. has been crowded with orders during the depression and has worked full time. During the last few days large orders have been received and it is stated that the officials are considering the advisability of keeping the plant running nights.

Connecticut, Uncasville. Reports that the Uncasville Mfg. Co. would go on a reduced schedule of three days a week are incorrect. Chas. E. White, agent, states that the mill will continue on full time as long as present conditions exist.

*Connecticut, Vernon. On July 13 James Lee Loomis, receiver for the Ravine Mills Co., will sell some of the property of the Ravine Company at public auction.

*Georgia, Blakeley. D. W. James, J. H. Flowers and W. H. Powell, all of this place, are interested with C. M. Deal in organizing a new cotton manufacturing company. As previously reported, it is expected to complete organization in the fall.

The WM. H. LORIMER'S SONS CO.,

Manufacturers of

MERCERIZED YARNS

FOR ALL PURPOSES.

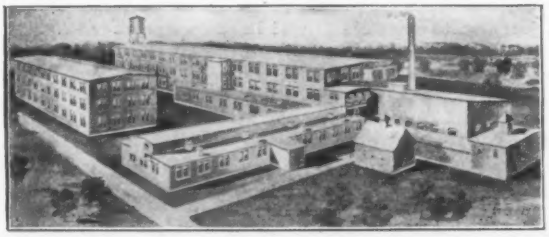
MERCERIZERS AND DYERS.

New York Office:
Room 911 New York Life Building,
346 Broadway.

Ontario and Lawrence Sts.,
PHILADELPHIA, PA.

PETER B. MCMANUS, Pres. and Treas. EDWARD J. MCCAUGHEY, Secy. and Mgr. JOHN MCMANUS, Vice-Pres.

HOME BLEACH AND DYE WORKS, Inc.



Dyers, Bleachers and Mercerizers of

Cotton Yarns

in skein, and long and short

CHAIN WARPS

Fast Colors a Specialty.

Daily Capacity 30,000 lbs.

Fast Colors and Black for Worsted Trade.

Office and Works, Pawtucket, R. I.

Established 1881.

GLOBE DYE WORKS CO., Successors to R. Greenwood & Bault

DYERS BLEACHERS AND **MERCERIZERS**

OF COTTON WARPS AND SKEIN YARNS

Globe Bleach and Dye Works,
Oxford and Worth Sts., Frankford, Pa.

140 Chestnut St., PHILADELPHIA.

YARNS BLEACHED AND DYED (delivered on cones)

BLEACHING and DYEING

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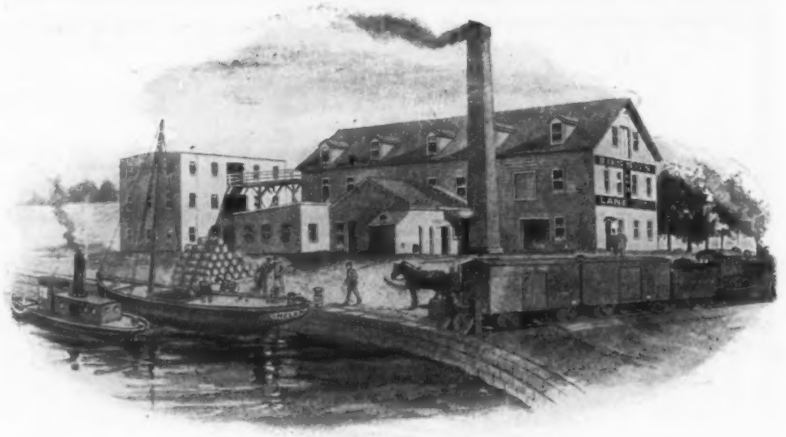

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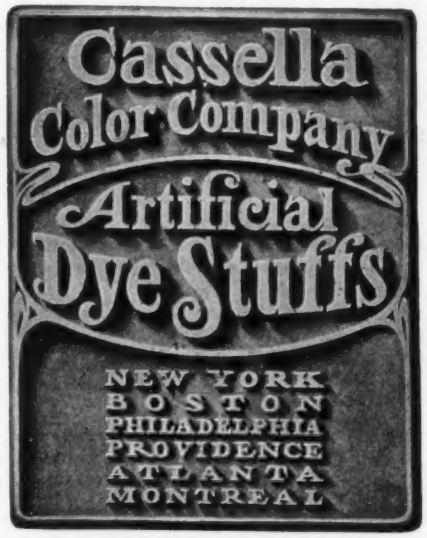
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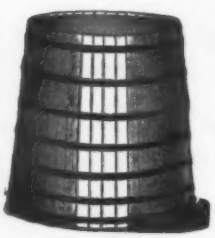
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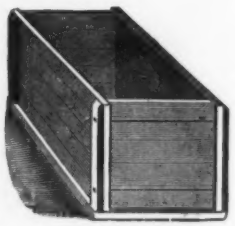
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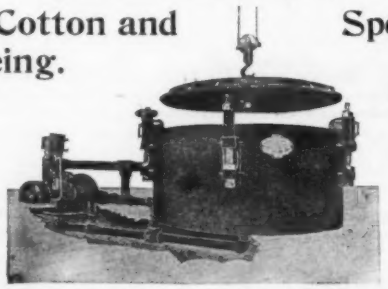

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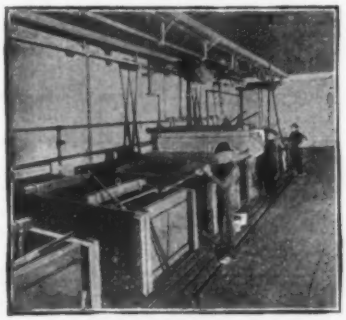

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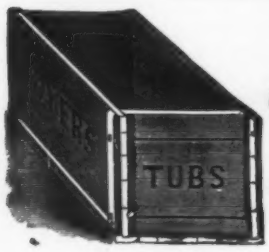

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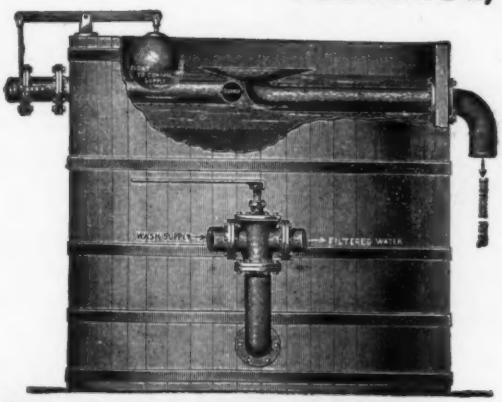

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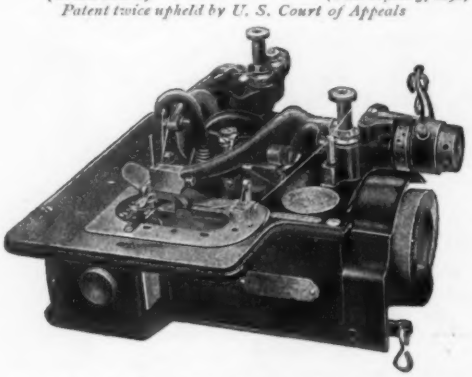

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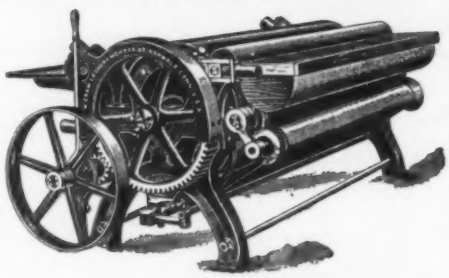

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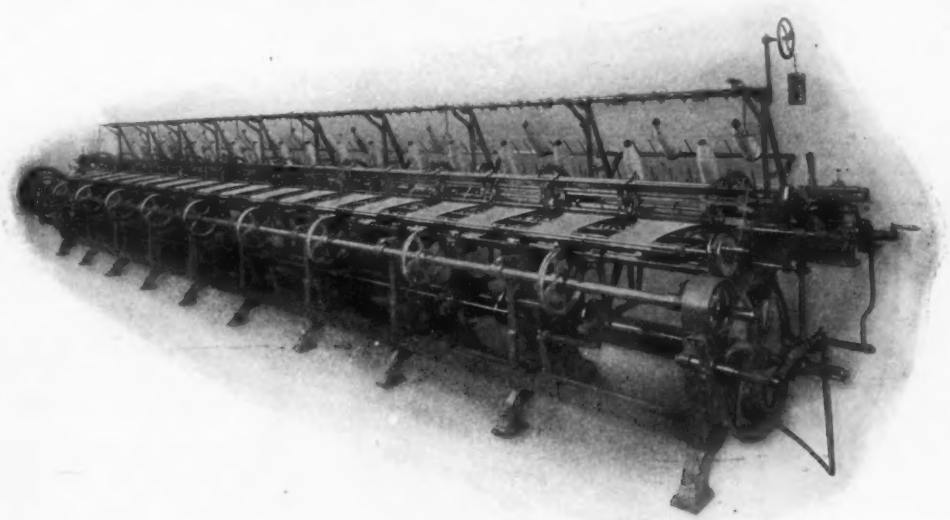

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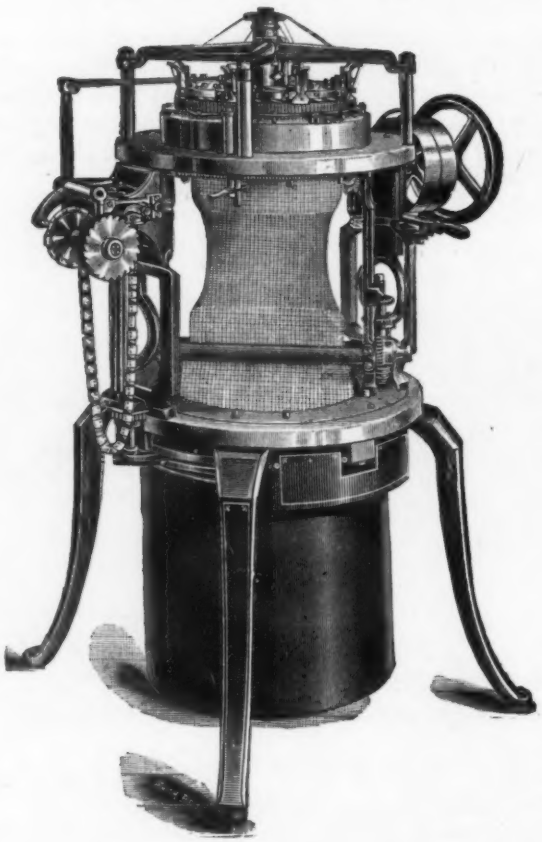

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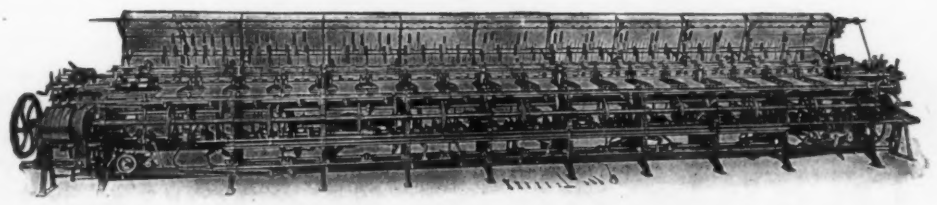

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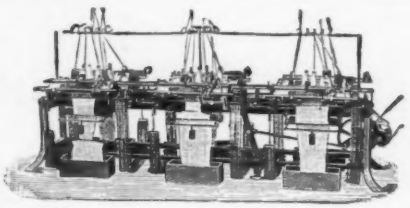

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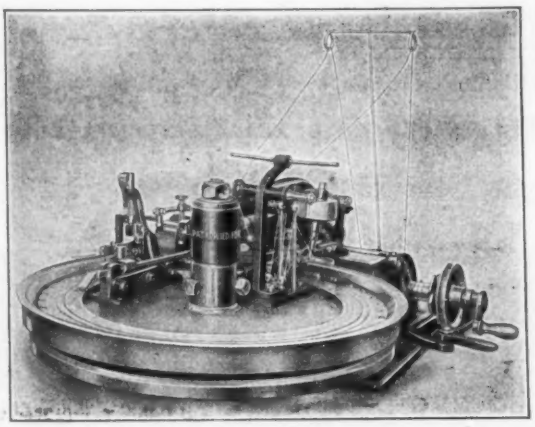

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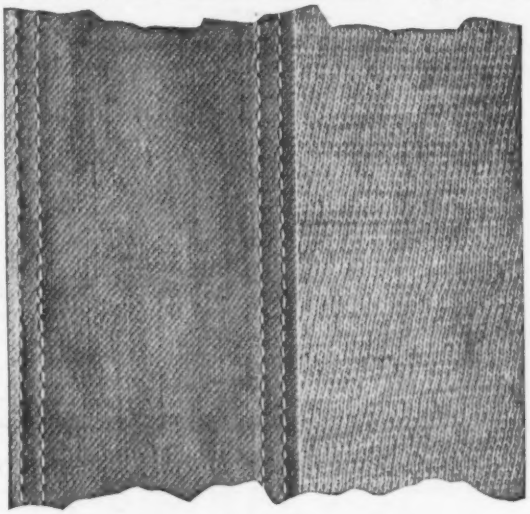

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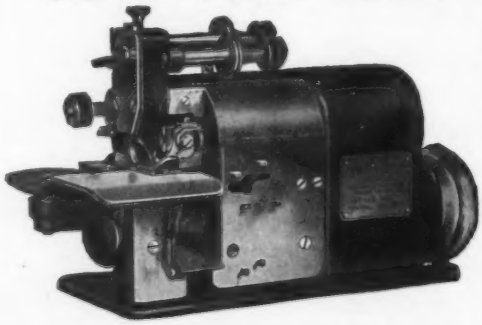
1 5 h. p. Gen. Electric Motor, 3 phase.
1 ½ h. p. Electric Motor.
1 Singer Nat. Button-hole machine.
500 Payne Winder Bobbins.
100 ¾ Aut. Knitters, various makes and sizes.
1 Payne 48 Spindle Cop Winder.
4 Abel 36 " " "
1 Huse 50 " " "
1 Uhlinger 42 in. Extractor, friction driven.
1 Cleveland 42 in. " belt "
1 Merrow Shell Crochet No. 35 B.
1 Crawford 21 plate Press 31 x 44 (hollow plate, screw press).
1 Pownall Screw Press 34 x 52 in.
1 Baling Press 36 x 48.
5 Band folding and cutting machines.
1 Curtis & Marble Napper, 66 in.
1 McCreary Napper, 60 inch, 16 rolls.
8 Jones Fleecers, 24 x 36 in.
6 Platform Scales, on wheels.
2 Singeing Machines.
1 Hosiery Printing Press.
4 Hosiery Lever Presses.
42 Union Spec. Sewing Machines, various styles.
50 Loopers and Seamers, all makes.
60 Ribbed Underwear machines.
300 Hosiery Ribbers and Sleevers.

WRITE FOR COMPLETE LIST. APPRAISEMENTS A SPECIALTY.
We are always in the market to buy good second-hand Knitting and Finishing Machinery.

The Merrow

FAST
DURABLE
Light Running

High Speed Overseaming, Overedging and Scallop Stitch Machines are



OUR NEW STYLE 60 MACHINE for Trimming and Overseaming in one Operation produces the strongest, best Seam and does it with the greatest economy.

USE STYLE 18 for Horse Blankets.
STYLE 17 or 22 for Bed Blankets.
STYLE 35 B SHELL, for Necks and Fronts of Rib Goods, produces the most showy, substantial finish.

Send for Catalogue and Samples.

THE MERROW MACHINE CO. HARTFORD, CONN.

Knickerbocker Building, Sixth and Arch Sts., Phila. Room 321, 467 Broadway, New York

EXCELSIOR KNITTING MACHINE MFG. CO.

Meadow and Washington Streets

ALLENTOWN, PENNA.

BUILDERS OF

Full Automatic Knitters

With or without **Transferring Device**

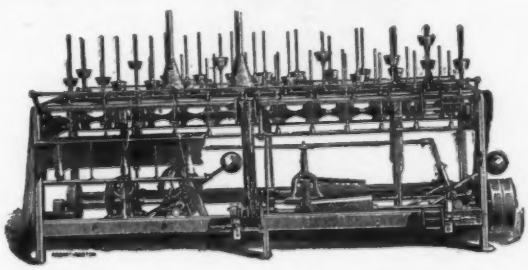
ALL SIZES AND GAUGES, 2 1-4 INCH TO 4 INCH

CIRCULAR KNITTING MACHINES

Either plain or full automatic, with stop motions complete. 4 to 24 feeds f r

RIBBED UNDERWEAR

Automatic Racking and Striping Machines for Sweaters, Cardigans, Collarettes, Cuffs and Anklets.



ALSO BUILDERS OF THE WELL-KNOWN

ABEL WINDERS, SEAMERS and LOOPERS.

LEIGHTON MACHINE CO., - Manchester, N. H.

The Invincible

Full Automatic.

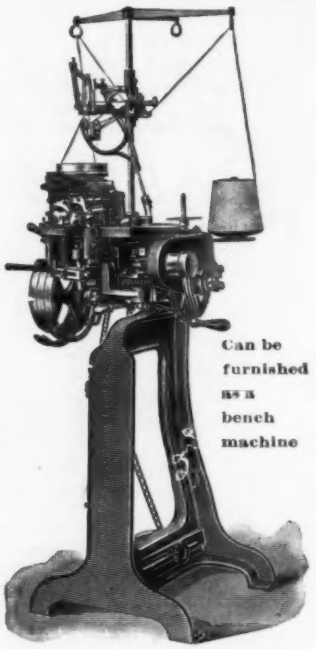
"The KNITTER that KNITS"

THE LARGEST PRODUCER OF PERFECT WORK.
SIMPLE, POSITIVE AND EASY TO OPERATE.

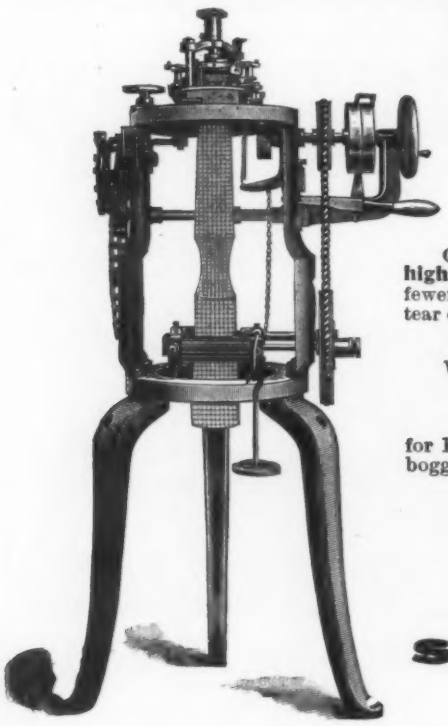
E. JENCKES MFG. CO.

Pawtucket, R. I.

PHILADELPHIA OFFICE,
101 North Sixth St.



Can be furnished as a bench machine



High Speed Rib Knitting Machinery.

Our latest model machinery has been designed to run at very high speed, giving large production. This is accomplished with fewer seconds, less breakage of needles, less jar and wear and tear on machines than has been customary at lower speeds.

We also make Special

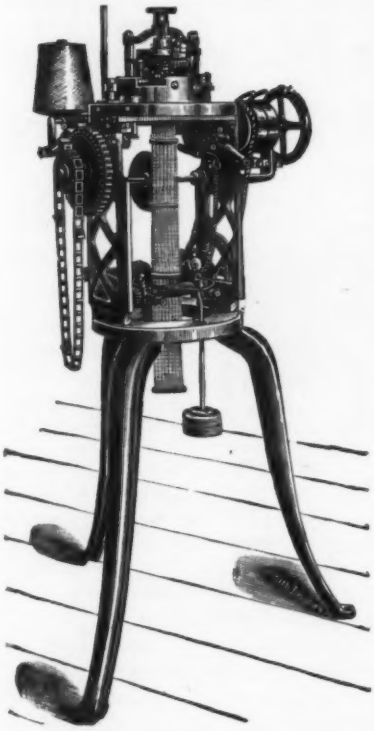
STRIPING AND DESIGNING MACHINES

for Fancy Golf Stockings, Bathing Suits, Sweaters, Toques, Toboggan Caps, Skirts, etc.

Our Machinery gives large production at low cost and enables manufacturers to meet the market always and make a profit.

STAFFORD & HOLT,

LITTLE FALLS, N. Y.



H. Brinton & Co.

213-215 Race Street, Philadelphia, Pa.

BUILDERS OF

Knitting Machinery

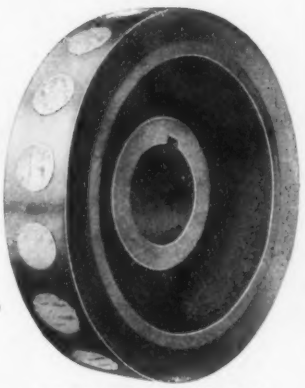
For HOSIERY and UNDERWEAR.

Complete Estimates Furnished. Send for Particulars.

The cut shows our **Improved Automatic Ribber with Welt and Slack Course** for Half Hose, Tops and Ribbed Legs.

"Uniform Speed Gives Uniform Product."

Cork Inserts Increase Knitting Machine Efficiency.



KNITTING MACHINE PULLEY.

They eliminate slipping and give evenness of motion, thus producing a high quality of product and large output. Any make of machine can be easily equipped with a Cork Insert pulley at slight cost. Write for particulars.

The American Woolen Co., Amoskeag Mfg. Co. and 138 other representative manufacturers are constantly adding to their Cork Insert equipment.

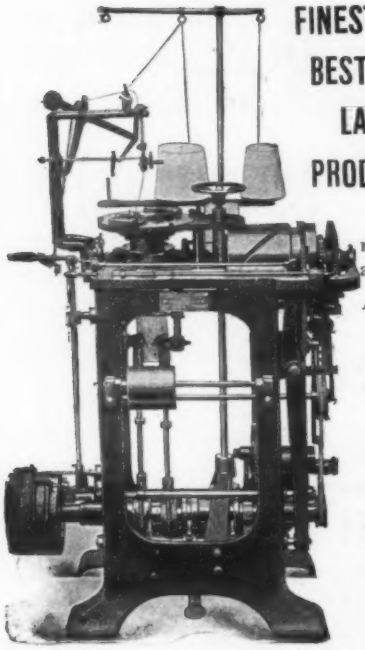
They are now using them in Pulleys, Loom Frictions, Mule Frictions, Line Shafting Clutches, Spinning Frames, Hoisting Engine Frictions, Shaping Machines, Automobile Clutches and Brakes, Gas Engine Clutches, Paper Calender Brakes, Street R. R. Brakes, Gas Charging Machines, Motor Boats, Shoe Eyelet Machines, Water Wheel Governors, Surface Planers, Surface Grinding Machines, Elevators, Etc., Etc.

Write for list of users.

National Brake & Clutch Co., 16 State Street, Boston

"NATIONAL"

Stands for



FINEST GAUGES
BEST FABRIC
LARGEST
PRODUCT ON

Greatest Variety of Laces and Novelties.

Allautomatic.

Lowest Cost for Operating

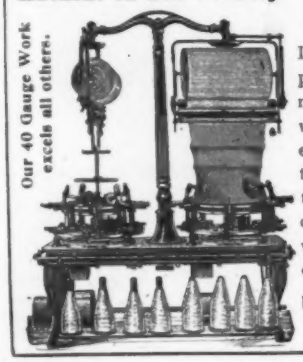
Also
Rib Knitting Machinery, Overedge, Crochet and Shell Stitch.

NATIONAL AUTOMATIC KNITTER CO.

728 Cherry Street, PHILADELPHIA, PA.

We are the Oldest Manufacturers

of this Design of Spring Needle Knitting Machine in this Country



40 years' experience

Do not be misled by people who became manufacturers in 1903 without any previous experience who are trying to represent that they are the oldest manufacturers. Investigate. Call and see our fine gauge work.

Robt. W. Gormly & Co.
Troy, N. Y.

The New Boss Seamless Knitter

Do you want the biggest production with the least menders, for the least money? If so, write to the Boss Knitting Machine Works for their circular with full directions. There is no cylinder to be handled. We use only one cylinder and transfer device for half hose or ladies' hose. This machine beats them all. Has no equal for simplicity and durability. Makes 300 revolutions per minute. Built in sizes from 2¼ to 5½; from 40 to 224 needles. Automatic in heel and toe. It is the strongest built knitter on earth.

Send for prices and particulars.

THE BOSS KNITTING MACHINE WORKS,
Cor. Elm and Reed Sts., Reading, Pa.

"Acme" and "Hemphill"

SEAMLESS HOSIERY

Knitting Machines

built by

Mayo Knitting Machine & Needle Company

Franklin, N. H.

Answer all purposes in the *most reliable*, *up-to-date*, and *economical* manner. Write us for full particulars.

Manufacturers like our Latch Needles

because we make a superior grade of needles.

Philadelphia Office, Knickerbocker Bldg.

STANDARD MACHINES FOR HOSIERY MAKING

The STANDARD F, with attachments, can make any and all of these fabrics:

Plain Goods
Plaited Work
Three Color Stripes
Tipped Heel and Toe
White Foot
Changed Heel and Toe
Garter Top
Loopers Slack Course

Most Stockings—Best Fabrics—Longest Life

Standard Machine Company

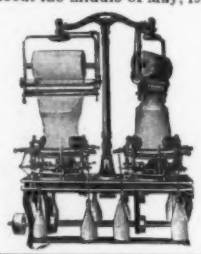
OFFICE AND SHOW ROOMS

330-340 North 12th St., Philadelphia

We Are the Oldest Manufacturers
IN THE WESTERN HEMISPHERE
Of Circular Spring Needle Loop-Wheel Knitting Machinery.

TOMPKINS BROS. CO., Troy, N.Y.

We submit the following extract from the sworn testimony of R. W. Gormly, in U. S. Circuit Court, Northern District of New York, in equity, No. 8764:
Cross Question 123. How long have you been a manufacturer of knitting machines? Answer. I started in this business about the middle of May, 1900.



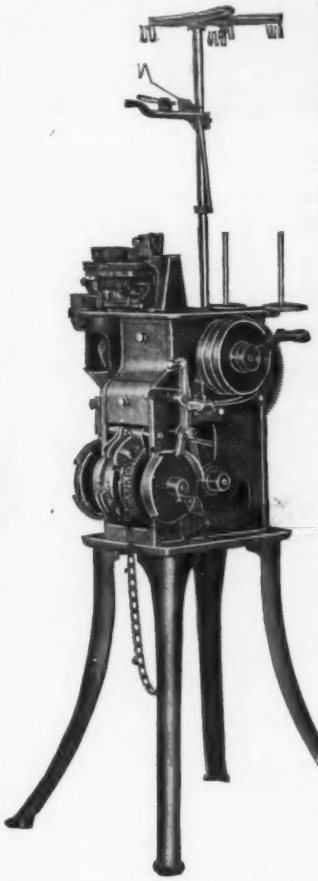
Tompkins Knitter

This design was adopted in 1875.
BUSINESS ESTABLISHED in 1846, before ROBERT W. GORMLY Was born, according to his testimony in the case above cited.

"THE BANNER"
Hemphill's Latest

A FULL AUTOMATIC MACHINE

Specially adapted to



Plaited Goods and **String Work** also **High Splice** and **Double Sole**

Largest Production
More Yarn Changes
Highest Speed
Simplest
Least Repairs

Produces a Superior Quality of Work.

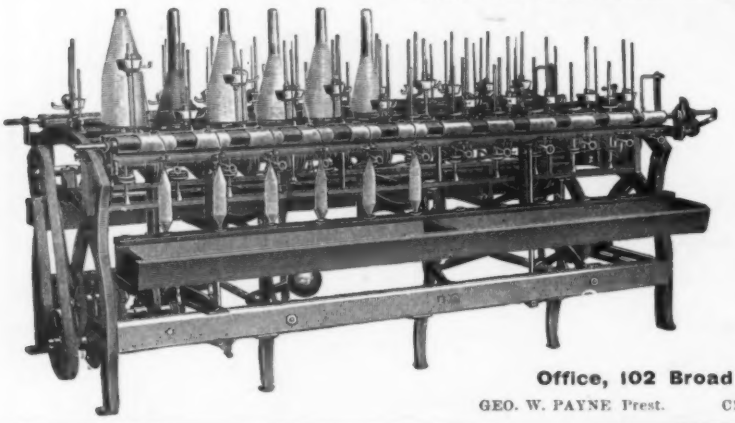
MANUFACTURED BY THE

Hemphill Mfg. Co.

131 Clay Street, PAWTUCKET, R. I.

OVER 1,900 PAYNE WINDERS IN USE

By Hosiery Manufacturers,
Wind for Cop, Skein or Bobbin.



Improved

Upright Spoolers,

To Spool from Cop, Skein or Bobbin.

Doubling Spoolers for doubling 2, 3, or more ends into one.

Upright Quillers, Quill from Cop, Skein or Bobbin.

Ring Dresser, Spooler and Reel Spindles, Cop Skewers, Warp, Spool, Spooler, Guides, Bolsters and Stops Made and Repaired at Short Notice.

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[Est. 1865. Inc. 1903.]

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GEO. W. PAYNE Prest. CLINTON F. PAYNE, Sec'y. and Treas.

HEPWORTH & CO.'S

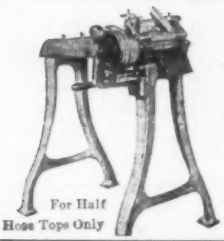
Patent Single-Stitch

LOOPING MACHINE.

Needle working from the inside, avoiding the breaking of needles and points and picking up the metal.

Single and Double Stitch, or Both Combined.

JOHN W. HEPWORTH & CO.,
N. W. Cor. Lehigh Ave. and Mascher Street,
PHILADELPHIA.

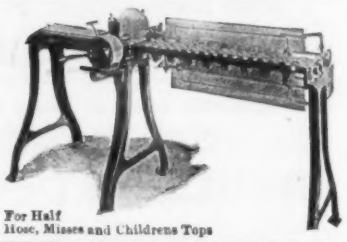


For Half Hose Tops Only

AUTOMATIC POWER TOP CUTTING MACHINES

Will cut, automatically, 1000 dozen half hose tops, or cut, and automatically pile in heaps of one dozen each, from 400 to 700 dozen misses tops, according to length, per day.

ROBINHOLD MACHINE CO.
650 North 8th St., Reading, Pa.

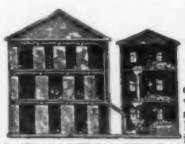


For Half Hose, Misses and Childrens Tops

Patent Loopers

Both single and double Stitch.
with the
Patent Raised
or
Straight Points.

Beattie Machine Works,
Cohoes, N. Y.



CHARLES H. SCHNITZLER,
Patentee and Sole Manufacturer of
THE PNEUMATIC CONVEYOR

For the handling of wool and cotton stock, rags, excelsior, jute and all kinds of fibrous material, wet or dry. Also spool elevators, steam heating and ventilating, and mill work generally. Blower and fan work a specialty. This conveyor is patented. Beware of infringement.

SATISFACTION GUARANTEED Patented Oct. 15, 1889.
215 NORTH SECOND ST., - PHILADELPHIA, PA

SAVOGRAN

Cleans Wool, Floors, Anything.

INDIA ALKALI WORKS, Boston.

PAXTON & O'NEILL'S

Full Automatic Knitter

FOR ALL KINDS AND GAUGES OF SEAMLESS HOSIERY.
RANGE ON HALF HOSE AND LADIES FROM 260 NEEDLES DOWN.

3-4 AUTOMATIC KNITTER

With Lace Effects.

Exclusive rights to BROWN'S LACE ATTACHMENT.

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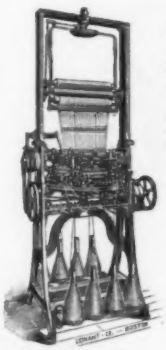
CHARLES COOPER,

BENNINGTON, VERMONT,

MANUFACTURER OF



Knitting Machinery

Flat and Circular Rib, both Spring and Latch Needle, Plain Circular Machines, Lead or Trick Cylinder, **Spring Needle Cylinder Rib-Top Machines** for making Cuffs, Drawer Bottoms and Shirt Borders.

Spring and Latch Knitting Needles,
Burr Wheels,
Burr Blades, Sinkers, Jacks, etc.

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European Representative:
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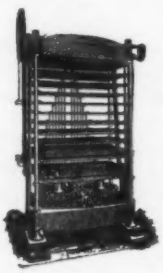
1x/4 Schubertgasse, Nr. 22, Vienna, Austria.

The CRAWFORD



HOLLOW STEAM

PLATE PRESS

For Knit or Woolen Goods.

The most reliable machine of the kind on the market.

PRESS PAPERS and FENDERS.

SPENCE & RIDEOUT,

Successors to
J. J. CRAWFORD & SON,

NASHUA, N. H.

Established 1868.

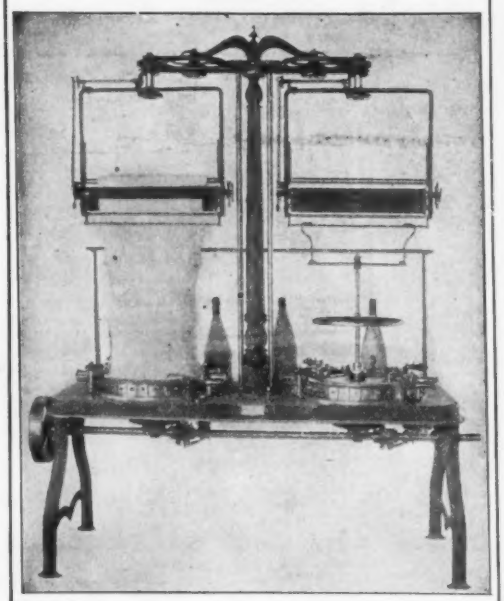
Established 1870. — Incorporated 1890.

CRANE M'F'G. CO.

LAKEPORT, N. H.

Manufacturers of

Spring and Latch Needle Machines for both rib and plain work, producing a great variety of fabrics. Patent removable hardened Wing Burr Wheels.



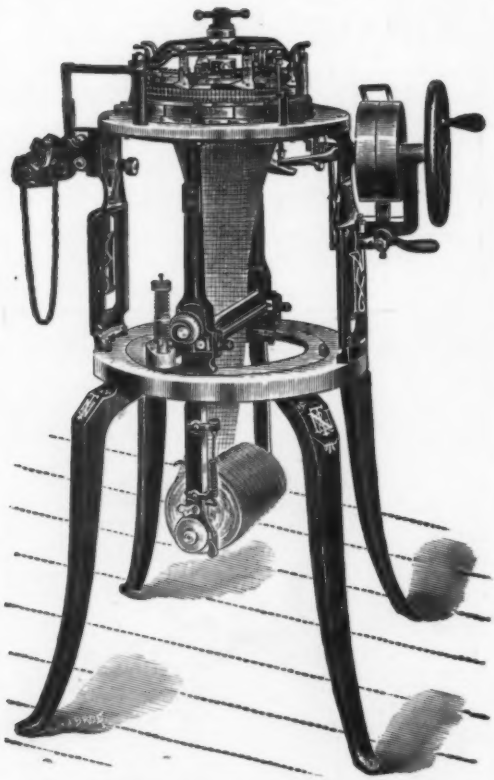
Spring Needle Underwear Machine.

NYE & TREDICK CO.

Circular Rib Knitting MACHINERY

For making Ribbed Underwear, Combination Suits, Sweaters, Cuffs, Shirt Borders, Hosiery, etc. : ; :

Correct Construction. Excellence and Durability.



LATEST IMPROVEMENTS
QUALITY OF FABRICS AND PRODUCTION
UNEXCELLED

NYE & TREDICK CO.
606 Arch St., PHILADELPHIA, PA.

If You Want

Largest Production For Least Money

Write

Geo. D. Mayo Machine Co.,
Laconia, N. H.

Latest
Simplest
Best

MAYO'S

New Full Automatic Knitter

PHILADELPHIA OFFICE,
KNICKERBOCKER BLDG., COR. SIXTH AND ARCH STS.,
B. M. DENNEY, REPRESENTATIVE.

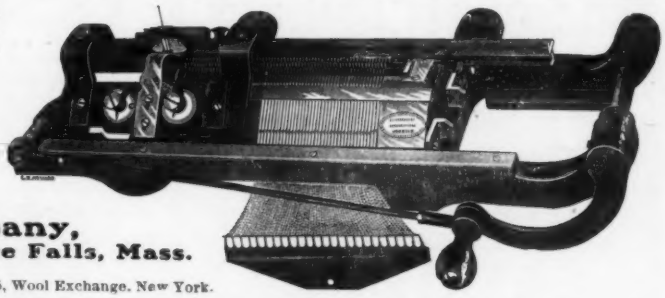
The LAMB

LEADER OF KNITTERS

Original and Still the Best.

Most widely used; being operated in every civilized country in the world. For description, prices, etc., see catalogue.

Circular Machines,
Rib Top and
Seaming Machines.



Lamb Knitting Machine Company,
P. O. Box, 5888, **Chicopee Falls, Mass.**
J. E. WOODHEAD, 100 22d St., Chicago.
L. D. SANBORN, Room 505, Wool Exchange, New York.

David Richter, Inc.

were the first machine builders in Chemnitz, Germany, to construct

Full Fashioned Hosiery Machines

upon the Cotton principle and which since their introduction have never been excelled by any other machine builder; be it in construction or productiveness. Built in all gauges and for any material, cotton, wool, lisle or silk.

Sole American Representative,

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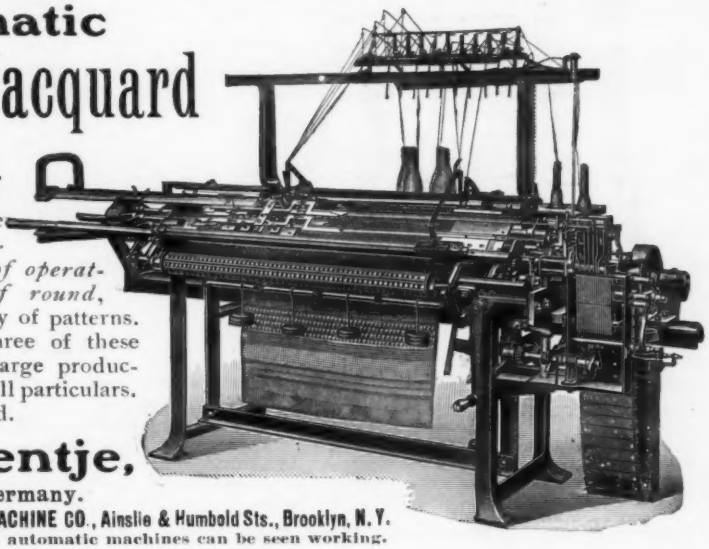
Full Automatic
Noppen & Jacquard

for high-grade sweaters, jerseys, etc.
Latest improvements

Recognized as the best in the market. With Jacquard attachment allowing *change of operating mechanism every half round*, therefore unrivaled in variety of patterns. One operator attends to three of these machines. High speed. Large production. Ask for samples and full particulars. State gauge and size you need.



Claes & Flentje,

Mühlhausen Thr., Germany.

Representatives, **AINSLIE KNITTING MACHINE CO., Ainslie & Humbold Sts., Brooklyn, N. Y.**
Where all kinds of our hand and automatic machines can be seen working.

Edouard Dubied & Co.,

Couvet, Switzerland,

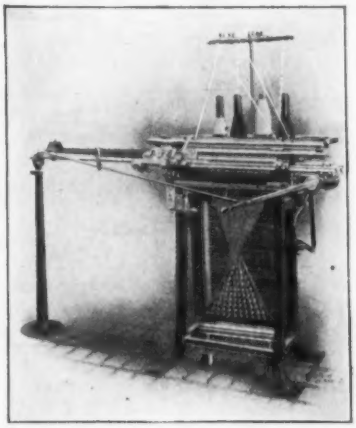
Knitting Machines,

Hand and Power.

HIGH CLASS WORK ONLY.

Paris 1900 "Grand Prix"
Milan 1906 "Grand Prix"

For catalogues and particulars apply direct to Couvet Works.



Drying Forms.

BOARDS FOR FAST BLACK DYERS.

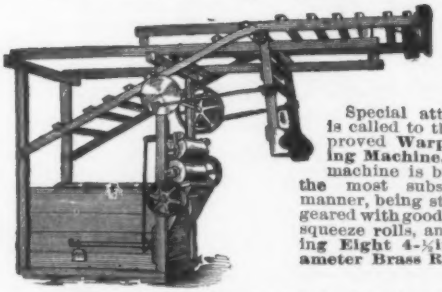
HOSIERY FINISHING BOARDS.

BEST WORK. PROMPT SERVICE. PRICES ALWAYS RIGHT.

JOS T. PEARSON 1815-21 TAYLOR ST. KENSINGTON PHILA

Hosiery Boards.

The Reliance Warp Dyeing Machine.



Special attention is called to this improved **Warp Dyeing Machine.** This machine is built in the most substantial manner, being strongly geared with good, heavy squeeze rolls, and having **Eight 4-½in. Diameter Brass Rolls.**

This machine, with our Improved Plater-down has met with marvelous success, and parties desiring machinery of this class, can make no mistake on ours For further particulars and prices, address

CHARLES HART,

Hedge and Brown Streets, FRANKFORD, PHILA.

Established 1849. Mass. Corp. S. R. MASON, Treas. and Mgr.

MASON BRUSH WORKS,

Manufacturers and Repairers of

CARD ROLL

Mill and Machine Brushes

For Textile, Paper Mills, Etc.

Write for Catalogue. **WORCESTER, MASS.**

Duxbury's English Calender Roll Papers

FOR EMBOSSING AND OTHER CALENDERS.

CHAS. A. JOHNSON & CO. Sole Agents for America

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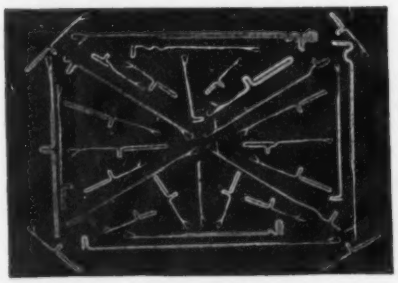
TRY OUR "SUPERIOR" OR SUNKEN RIVET-HEAD NEEDLES

They will save you money.



Dodge Needle Co., Manchester, N. H.

WM. COREY CO.,

Manufacturers of Knitting Machine

Latch Needles

MANCHESTER, N. H.

EXCELSIOR NEEDLES.

The best Hosiery Needles in the market.

Manufactured by

WARDWELL NEEDLE CO., Lakeport, N. H.

WM. BREEDON'S SON,

MANUFACTURERS OF

Spring Knitting Needles

AND BURR BLADES OF ALL KINDS.

AMSTERDAM, - N. Y.

LEWIS JONES,

60½ and Media Streets, . . . PHILADELPHIA.

GAS ENGINES for city or country
BRUSHING MACHINERY
KNITTING MACHINERY
} EFFICIENT DURABLE LOW IN PRICE

Standard Latch Needles

MANUFACTURED BY

EXCELSIOR NEEDLE CO.,

TORRINGTON, CONN.

The Largest Manufacturers of Machine Needles in the World.

STANDARD

TRADE MARK.

Longer Wear. Better Work.
Less Mending. Fewer Seconds.
Have you tried our
Patent Milled Rivet?

Agents

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C. Shawl, 414 Polk St., San Francisco, Cal.
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MANUFACTURERS OF

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Needles for all makes of Knitters and Ribbers.
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Special Needles made to order.

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Manufacturers of the BEST GERMAN NEEDLE on the Market.

RIVETS GUARANTEED. Samples on application. SPRING NEEDLES A SPECIALTY.

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both Cylinder and Wicket Gate, giving **ENORMOUS** power are used in hundreds of textile mills throughout the world.

We make a specialty of designing turbines to meet the requirements of the public.

We build Francis turbines in spiral flumes to operate under high heads.

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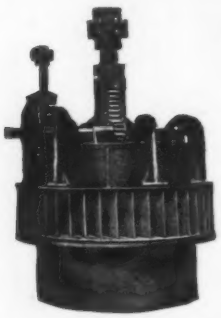
S. MORGAN SMITH COMPANY, York, Pa., U.S.A.



Risdon-Alcott Turbine Co.

MOUNT HOLLY, NEW JERSEY, U. S. A.

RISDON CELEBRATED TURBINE
ALCOTT HIGH DUTY TURBINE
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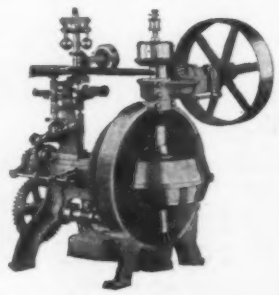
On Horizontal or Vertical Shafts.

These Turbines are recognized as the most effective water wheels made. Your inquiries should come direct to us for this class of machinery.



Water Wheel Governors

OUR compensating type more fully meets the needs of Textile Mills than any other. This is due to its being the only successful quick acting, mechanical, governor and its perfect control of large as well as small changes. 1500 of this type in use in mills and electric power plants.

Woodward Governor Co., Rockford, Ill.

THE NATURAL RESULT

Of over rating lightness of construction and the desire to place on the market a pump that is cheap—is seen in the fact that during the past month we have replaced four pumps of other makes with

Goulds Efficient Power Pumps

We manufacture a complete line of Triplex Pumps for every service and will be pleased to send catalog on application.

THE GOULDS MFG. COMPANY,

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Good Working Conditions are essential to good work

In the "sultry summer time" unless live air is kept moving through the mill textile operatives cannot produce the best results. The "A B C" way of ventilating is the least expensive and most satisfactory. Our engineering department is at your service. Let us know your requirements.

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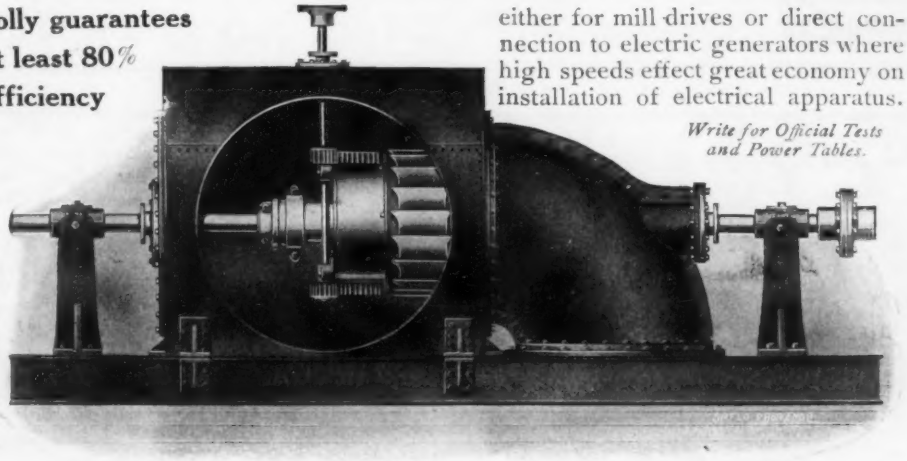
Water Wheels made to meet all requirements

Jolly guarantees at least 80% efficiency



either for mill drives or direct connection to electric generators where high speeds effect great economy on installation of electrical apparatus.

Write for Official Tests and Power Tables.

J. & W. Jolly, Inc. 500 East St., Holyoke, Mass.

Manufacturers of the Original "McCormick Holyoke Turbine." Both Vertical and Horizontal.

You Save Enough Insurance to Pay for the Equipment.

So it costs you NOTHING to have the AMERICAN WATCHMAN'S CLOCK. Fully approved by all insurance companies. We equip factories with Fire Alarms, Signals, etc., also Employee's Time Recorders, and Telephone Systems. Electric Time System consists of Master Regulator in office with secondary electric clocks throughout the mill, insuring accurate time. Send for particulars.

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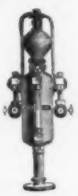

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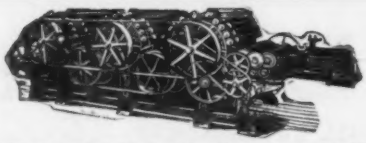

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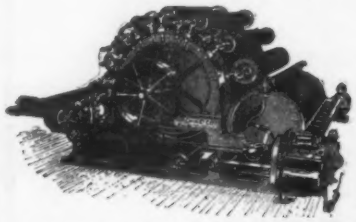
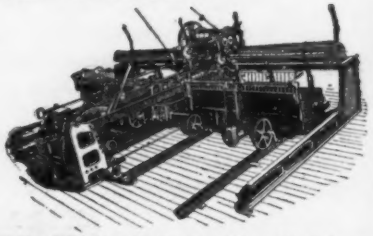
For reducing to Fibre Cotton and Wool Waste, Cloth Clippings, Etc.



WOOLEN MILL MACHINERY



Including Rag, Wool and Burr Pickers, Wool, Worsted and Shoddy Cards, Mules, Yarn Twisters, Warpers, Dressers, Spoolers, Etc.

Complete Equipment for Manufacturing Cotton Batting for All Purposes.

Special Carding and Spinning Machinery for manufacturing Yarn from such low grade stock as Mill Sweepings, Linters, Etc.

We reclothe or furnish new Metallic Toothed Cylinders and Rolls and relagg or furnish new Cylinders for any make of Rag Picker.

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For Cotton Stock, Wool Stock, Rags, Yarn, Cloth
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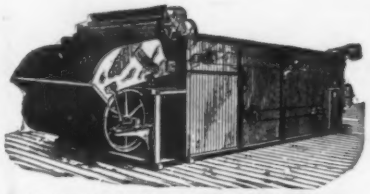

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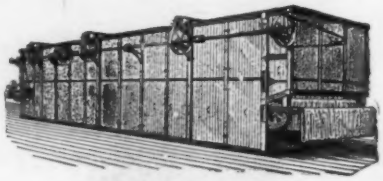

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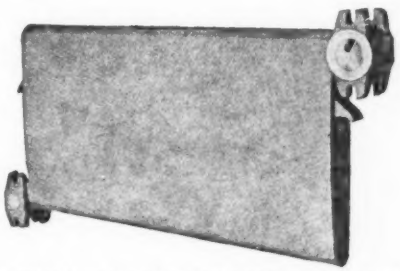
furnish an entirely practicable, scientific solution of the more or less perplexing problems heretofore surrounding the operation of drying cloth and yarn.

A CELL DRIER 8 feet long has as much drying surface for cloth and yarn as a can dryer 55 feet long. Its capacity is equal to that of fifty 23-inch diameter cans. Such a battery of cans would have 100 stuffing boxes, 50 sets of scoops, buckets or siphons, and 100 vacuum or air valves. THE CELL DRIER has none of these. It does equally good work, and is run at much less expense.



Exterior View of a Single Cell with Steam Couplings.

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The QUALITY of the goods, as well as QUANTITY, is determined by the methods of manufacture.

THE MILL EQUIPPED WITH

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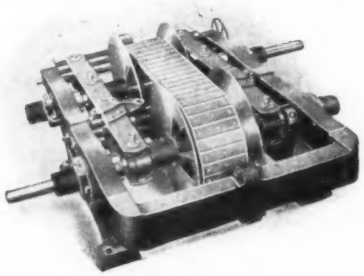

for regulating the speed of the tenters, dryers, mangles, printing, bleaching, dyeing and mercerizing machines, etc., produces the best and the most at the lowest cost, because it gives the ***exact speed*** best suited to the work.

Ask those using it.

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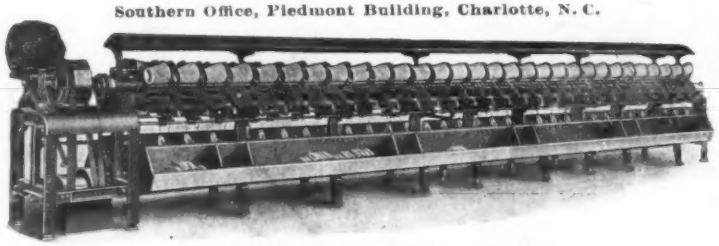

Both "Open" and "Close" Winding Machines for every branch of textile manufacturing.

New Model No. 12 Cone and Tube Winder.

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1. More carding on our 2-card set than on 3-card set, old style.
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4. The only improvement on cards that has been proven a success. Come and see them running.

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We can give one week deliveries on any order of the above kinds of spools.

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